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. . Index to Contents, June, 1940 . .

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IN THE MUNICIPAL INDEX AND ATLAS (the annual reference volume of data and condensed catalogs published by the American City Magazine Corporation) readers will find statistical material, and articles on a wide variety of municipal and public works subjects, not published in the monthly issues of the magazine.

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figures CAN BE VERY REVEALING

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HERE ARE SOME FIGURES ON savings THROUGH USE OF . . .

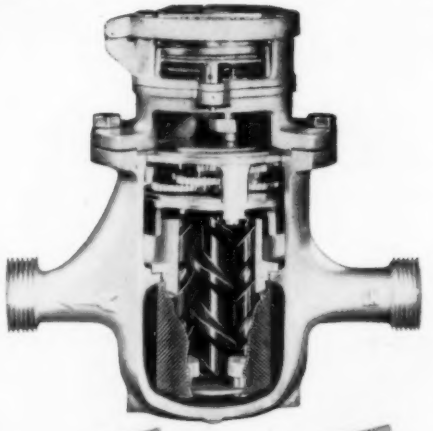
PITTSBURGH IMO METERS

FIGURES, the mathematical kind, tell the true story of the performance of any piece of equipment. The PITTSBURGH IMO Meter, with its unprecedented low flow accuracy, is writing new operating profit figures in the books of waterworks systems throughout the country. No other meter manufacturers' specifications guarantee an accuracy of 98% at 1/4 g.p.m., and 90% at 1/12 g.p.m.

Since it is a proven fact that an average of 30% of the water consumed in domestic service is at rates of flow of under one gallon per minute, these IMO accuracy specifications assure the maximum return of revenue from each outlet. Meters that fail to operate at low flows, or measure only a relatively small portion, can lose a large part of this highly important and profitable volume. It is a sound economic measure to replace such meters with PITTSBURGH IMO's, since they will pay for themselves in a relatively short time out of increased earnings.

It's important to remember, too, that this low flow accuracy of the PITTSBURGH IMO is sustained accuracy. The most severe tests made by unbiased engineers have proven this fact. Not only sustained accuracy, but also longer meter life, results from the use of the finest materials ever embodied in meter construction, the unique design which reduces wear to a minimum, and the use of the most modern automatic precision equipment in its production.

PITTSBURGH IMO Meters are reducing operating expenses and increasing revenue in waterworks systems from coast to coast. A bulletin, W-529, describing this new standard in water meter performance, will be sent upon request.



Remember— PITTSBURGH IMO METERS WEAR IN WHERE OTHERS WEAR OUT

NO CLICK!

They operate quietly. The basic construction of the PITTSBURGH IMO is responsible for its quiet operation. Smoothly turning rotors, precision cut to mesh perfectly, revolve with a semi-floating action as the water flows through the measuring chamber in a straight line. For this reason the IMO can never become noisy, there can be no clicking sound to annoy your consumers.

These rotors, silently revolving in the moving stream, replace noisy, slapping discs.

PITTSBURGH EQUITABLE METER COMPANY

MERCO NORDSTROM VALVE CO.

NEW YORK · BUFFALO · PHILADELPHIA · KANSAS CITY · TULSA · LOS ANGELES · *Main Offices* - PITTSBURGH, PA. · DES MOINES · CHICAGO · COLUMBIA · MEMPHIS · OAKLAND · HOUSTON

Thousands of IMO Meters Are Now in Service — Over ~~1100~~ 1200 Water Works Systems Have Adopted Them

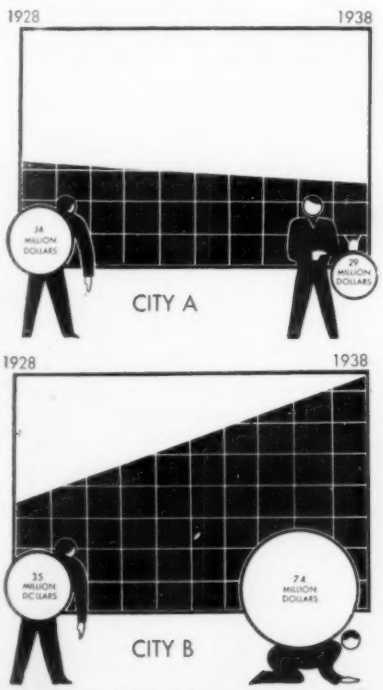
The Citizen and His City Government

Municipal Efficiency Graphically Presented

WHO's Boss?, new pamphlet of the National Municipal League, contains the illustrations here reproduced and numerous others emphasizing the principle to which the League has been dedicated for nearly 50 years—that effective self-government requires that everybody take an intelligent interest in everybody's business of government.

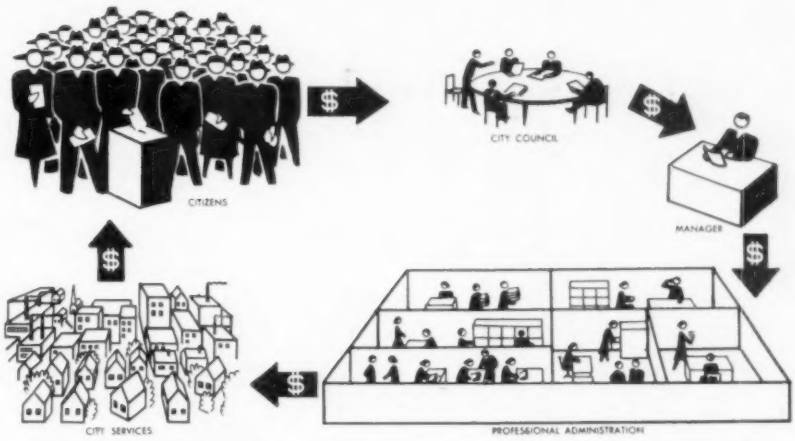
The authors, Miss Miriam Roher, of the League, and Rudolf Modley, of Pictorial Statistics, Inc., estimate that "whether he earns $1,000 or $2,000, or $5,000 a year, a man who has a family of four and owns his own home and an automobile works almost a month and a half every year to support city and county governments." But they also show that he gets in return a variety of services essential to every member of his family."

The pamphlet points out that "a good form of government helps assure choice of able men and women as administrators and makes it possible for them to do their jobs well." Copies available at 15 cents each from the National Municipal League, 299 Broadway, New York.



DEBT OFTEN RESPONSIBLE FOR HEAVY TAX BURDEN

Interest charges on municipal debt greatly increase total cost of government. This is one of the reasons for high taxes in city B.



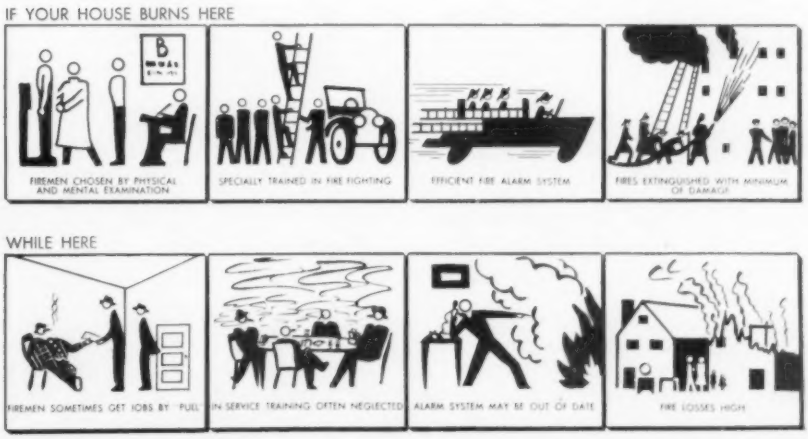
CITIZEN CONTROLS GOVERNMENT THROUGH MANAGER PLAN

Five hundred communities have council-manager government whereby citizens elect a small city council which chooses a trained manager to administer the city in a professional manner.

THE STREETS YOU RIDE ON HERE
FREE OPEN BIDDING ON ROAD-BUILDING CONTRACTS
LOWEST RELIABLE BIDDER GETS THE JOB
DURABLE CONSTRUCTION MATERIALS USED
RESULT—SAFE RIDING FOR YOU
BUT HERE
POLITICAL FAVORITES SOMETIMES GET CONTRACTS
IN SOME CASES GRAFT MAY BE INVOLVED
INFERIOR MATERIALS, SLOW WORK
ROAD CLOSED FOR REPAIRS
RESULT—DETOURS, OR YOUR AUTO STALLED IN RUTS

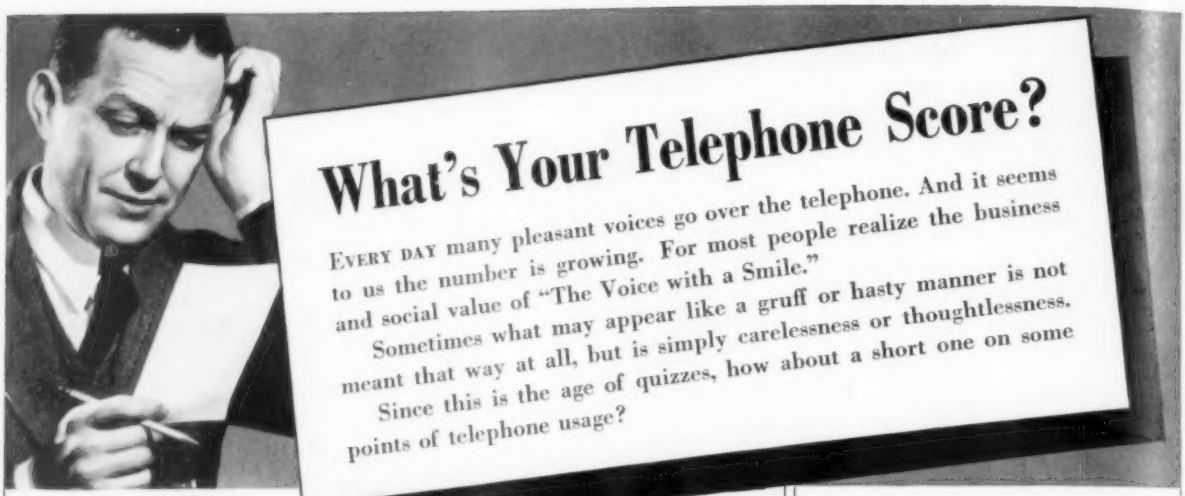
QUALITY OF CITY SERVICES VARIES WIDELY: HIGHWAYS

Constructing and maintaining public buildings, streets and bridges is a science.


IF YOUR HOUSE BURNS HERE
FIREMEN CHOSEN BY PHYSICAL AND MENTAL EXAMINATION
SPECIALLY TRAINED IN FIRE FIGHTING
EFFICIENT FIRE ALARM SYSTEM
FIRES EXTINGUISHED WITH MINIMUM OF DAMAGE
WHILE HERE
FIREMEN SOMETIMES GET JOBS BY PULL
IN-SERVICE TRAINING OFTEN NEGLECTED
ALARM SYSTEM MAY BE OUT OF DATE
FIRE LOSSES HIGH

QUALITY OF CITY SERVICES VARIES WIDELY: FIRE PROTECTION

Rate of fire loss is a good index of fire-fighting efficiency.



What's Your Telephone Score?

EVERY DAY many pleasant voices go over the telephone. And it seems to us the number is growing. For most people realize the business and social value of "The Voice with a Smile."

Sometimes what may appear like a gruff or hasty manner is not meant that way at all, but is simply carelessness or thoughtlessness.

Since this is the age of quizzes, how about a short one on some points of telephone usage?

Do You Talk Directly Into the Telephone?

The proper way to use the telephone for best results is to hold the transmitter directly in front of the lips while you are talking.

Do You Speak Pleasantly?

Remember . . . it may be your best friend or best customer. Greet him as pleasantly as if you were face to face. Pleasant people get the most fun out of life anyway.

Do You Hang Up Gently?

Slamming the receiver may seem discourteous to the person to whom you have been talking. You don't mean it, of course, but it may leave the wrong impression.

Do You Talk Naturally?

Your normal tone of voice is best. Whispered words are indistinct. Shouting distorts the voice and may make it gruff and unpleasant.

Do You Answer Promptly?

Most people do. Delay in answering may mean that you miss an important call. The person calling may decide that no one is there and hang up.

"The Voice with a Smile"

can be a real asset. Haven't you often said of some one who has just telephoned — "My, but she has a pleasant voice." Or —"I like to do business with them because they are so nice over the telephone."

It's contagious too. When some one speaks pleasantly to you, it's easy to answer in the same manner.

Many times you form your impression of people—and they judge you — by the sound of a voice over the telephone.

BELL TELEPHONE SYSTEM

THE BELL SYSTEM CORDIALLY INVITES YOU TO VISIT ITS EXHIBITS AT THE NEW YORK WORLD'S FAIR AND THE GOLDEN GATE INTERNATIONAL EXPOSITION, SAN FRANCISCO

During June we hope you will remember to mention THE AMERICAN CITY.

Our Municipal Notebook

Fire Insurance of Municipal Property

FROM TIME TO TIME one industry or another is pilloried, usually with considerable justice. Once it was the traction interests, now largely bankrupt; then banking or the money trust, now with few outlets for lending; in recent memory, the power interests, which have passed through a most parlous period of public criticism and are not out of the woods yet; now it is the fire insurance companies.

Until recently, few people questioned fire insurance rates. There were no bargains. You insured at the one market price. Why should not the price be the same everywhere? Given spread enough, the risk was one and the same. Fires were of frequent occurrence. Frame houses with wooden shingle roofs were the standard; then brick with slate roof and wood interior trim; gradually the business districts turned to stone, and conflagrations began to be controlled. "Pittsburgh's last great fire occurred almost 100 years ago," said Mayor Cornelius D. Scully on March 9 at the Southern Regional Conference of the United States Conference of Mayors. Executive Secretary Paul V. Betters of that aggressive body says: "For the first time city officials in all sections of the country are giving this subject the attention it deserves. Studies are being carried on in all sections of the country."

THE AMERICAN CITY also has made a study, presented on page 47 of this issue. As with similar studies, in the fields of accounting and city transportation for instance, this magazine went to headquarters for information, in this case of fire insurance companies. Who else should know more about the manufacture and correct use of fire insurance? The information obtained was sifted and considered, and it is believed that the article is eminently fair and thought-provoking. "Soak the villain" is a popular pastime, but one not always constructive. Too many eggs can close the show, but sometimes the show would have provided even more fun.

Many questions remain to be answered on the subject of fire insurance of municipal properties. Meanwhile, a start has been made. The fire insurance business comprises hundreds of companies, the leaders eighty or more years old with records of uninterrupted meeting of obligations. Presumably their managements have been pretty good, and again presumably there are men in the industry who are fair-minded, reasonable, and articulate, whose thoughts and words and deeds can greatly help to lead this subject out of the dark.

Signs Which Strike the City Keynote

PEEKSKILL, N. Y.—Those who enter the village of Peekskill by any of its approaches are greeted by Colonial signs erected by the Civic Improvement League, whose President is George Levinton, advertising manager of *The Evening Star*. The seven signs were constructed and installed by the Peekskill Sign Co. for $245. They are of wood with white background, the scenes in color and the lettering black. Although the scenes on front and back of the signs are the same, the descriptive titles under the name of Peekskill are all different. Three themes are used in the copy—the historical background of Peekskill, the commercial advantages, and the friendly people.

Is Home-Made Fire Apparatus Worth It?

HOW MANY MUNICIPAL OFFICIALS actually know very much about fire apparatus? It is said that designing fire apparatus requires specialized knowledge, experience and research; yet there are numerous assembled jobs to show that all apparatus is not built to detailed plans. On the one hand is the standard factory-built-from-the-ground-up pumper and aerial; at the other extreme is the spare-time creation of firemen.

If the home-made apparatus passes the tests of the National Board of Fire Underwriters, it is good enough for regular service. There are, however, objections to home-made fire apparatus. The first is that cities should not manufacture. They should not even make traffic signs, let alone motor vehicles. Every encroachment on private industry tends to weaken the business structure of the country which provides employment and taxes. The second objection, where the firemen assemble apparatus, is that the men ought to be fully employed in inspecting, studying hazards and tactics, educating the public, and otherwise practicing their trade.

The claim is made that the price of fire apparatus is considerably above its cost to produce. How many municipal officials have any idea of how much it costs to produce a pumper or an aerial or a rescue truck? Frequently the manufacturers themselves cannot keep track of these costs. When a piece of apparatus is assembled in a municipal shop, are *all* the cost items which should be charged to the piece charged to it? There are many assertions to the contrary.

Where the firemen do the assembling, it is contended that they are doing it instead of reading or playing games. But if they work hard on such a job, they are not in the best condition to do their work as firemen. They are, moreover, competing with labor. Furthermore, organized experience is needed for the mere selection of parts. Then, too, the men who built the apparatus may depart and leave no record of the source and peculiarities of the parts. Pumping water is equivalent to an engine's carrying a full load up a steep hill at 40 miles per hour. To meet this type of service, commercial truck engines must have certain changes made in them which apparatus manufacturers know how to make and master mechanics may not know.

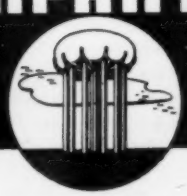
Finally, on the subject of apparatus prices, the sale is not the end of the contract. Fire chiefs and manufacturers both know this. Parts must be kept in stock for decades; service anywhere must be furnished promptly. New principles must be developed, new designs worked out, new models built. Manufacturers should be encouraged to pioneer. One form of encouragement—and a very sensible way to buy fire apparatus—is to appropriate about the same amount every year, as Bridgeport (see p. 58) does.

RALEIGH *Modernizes with* ELEVATED STORAGE . . .

THIS 750,000-gal. "Colonial" design Horton radial-cone bottom elevated tank occupies a prominent position in a well-planned water works modernization program which is now being carried out in the city of Raleigh, N. C. Another important improvement, which will be completed in July, 1940, will be an entirely new filtering and pumping plant having a capacity of 8,000,000 gals. In addition to the new installation shown above, the Raleigh water supply system includes an existing elevated tank of 600,000-gals. capacity, bringing the total storage held in elevated tanks to 1,350,000 gals.—ample to meet the requirements of approximately 9,700 consumers for years to come. We shall be glad to discuss your needs for municipal water storage facilities, without obligation. Please address our nearest office.

CHICAGO BRIDGE & IRON COMPANY

Chicago . . . . . 2127 McCormick Bldg.	Philadelphia . . . 1616-1700 Walnut St.	San Francisco . . . . . 1033 Rialto Bldg.
New York . . . 3308-165 Broadway Bldg.	Boston . . . 1501 Consolidated Gas Bldg.	Houston . . . . . 2919 Main Street
Cleveland . . . . 2236 Rockefeller Bldg.	Birmingham . . . . 1502 N. Fiftieth Street	Tulsa . . . . . 1625 Hunt Bldg.
Detroit . . . . . 1501 Lafayette Bldg.	Dallas . . . . . 1406 Liberty Bank Bldg.	Los Angeles . . . . . 1403 Wm. Fox Bldg.



Plants at BIRMINGHAM, CHICAGO, and GREENVILLE, PA.
In Canada: HORTON STEEL WORKS, LIMITED, FORT ERIE, ONTARIO

When you write for that catalog, kindly mention THE AMERICAN CITY.

Water-Supply Items

Water Consumption in 1939 in Chicago

THE POPULATION WITHIN THE LIMITS of the city of Chicago as of December 31, 1939, is estimated at 3,723,000, as compared with 3,689,500 one year previous. This is an increase of 33,500, or 0.91 per cent. Water consumption for the city of Chicago in 1939 amounted to 335,992,738,920 gallons, of which 37.56 per cent, or 126,226,466,420 gallons, passed through meters. The average daily consumption was 920,528,052 gallons, which compares with 938,454,440 gallons for the year 1938, a decrease of 1.91 per cent. The per capita consumption or average daily use of water per inhabitant during 1939 was 247.25 gallons, as compared with 254.35 gallons in 1938. This was the lowest per capita consumption since before 1920.

"Lost and Found"

THE FOLLOWING ITEM might well have appeared in a Fall River, Mass., newspaper for nine days in January, 1940:

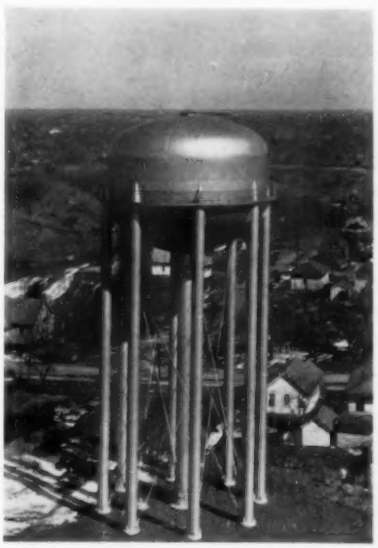
> LOST, somewhere in Fall River, Mass., 1,500,000 gallons of water daily. Will finder please notify Water Works Superintendent, John W. Moran.

The reason? The Water Department's pumping station recorded abnormally large quantities of water being delivered to the mains, and about 1.5 mgd was disappearing mysteriously. This was not the first nor even the worst problem which has been met successfully by the Fall River Water Department. The superintendent followed a definite procedure in tracing the leak—and then, as will happen in even the best-regulated water departments, found it accidentally.

The first step was to check up with the Police and Street Departments to find whether there had been any complaints of washouts or soft street surfaces. There was no water flowing down gutters nor were there any geysers spurting into the air. The Department's twenty-six employees began checking with listening devices on the 1,800 city fire hydrants. Failing to find a trace of the leak by this method, they next divided the city into zones, closed all gate-valves one district at a time to check on the flow in the various districts. A total of 16 miles of mains was checked in this manner.

Newspaper publicity led to reports coming in from citizens telling of suspicious-looking puddles and leading incidentally to the repair of several minor leaks. The big problem remained unsolved, and the pumping station continued to show a 1.5 mgd volume over the average day's pumping of 7.50 mgd. This excess draft showed that a pipe of about 6-inch diameter had broken.

On the tenth day of the leak a master plumber, walking into a mill to do a small repair job, noticed an unusual vibration of the flooring. He immediately notified the Superintendent, and the water main was shut off. A 12-foot length of a 6-inch main had been sheared off and the water was flowing into the Quequechan River.



The New 350,000-Gallon Ellipsoidal Elevated Storage Tank at Kalamazoo, Mich., erected by Chicago Bridge & Iron Co.

New Elevated Tanks at Kalamazoo, Mich.

KALAMAZOO, MICH., has recently added two new elevated steel storage tanks to its water-works system. The first is a 750,000-gallon radial-cone design tank, 102 feet to the bottom, with tubular columns.

The other tank, shown in the illustration, is a 350,000-gallon structure of ellipsoidal-bottom design. It is somewhat special, however, in that it has both an ellipsoidal bottom and an ellipsoidal roof, as well as tubular columns. Only one tank of this type, to our knowledge, has been built previous to this with tubular columns, and it held only 75,000 gallons. The tanks are equipped with cathodic corrosion control furnished by the Electro Rust-Proofing Co.

Unaccounted-for Water Is Money Lost

UNACCOUNTED-FOR WATER can be classified under three headings as follows: (1) leaks in mains and services; (2) slippage and under-registration in meters; (3) water used in public buildings, schools, churches, fire departments, street and sewer flushing.

Research says 5 per cent of pumpage ordinarily can be charged to leakage in the mains, and 9 per cent to service leaks. Slippage usually averages not more than 5 per cent. Therefore, a water department should sell about 81 per cent of the water. Some cities report that if constant vigilance is maintained, they are able to sell almost 90 per cent.

Slippage and under-registration in meters brings up an entirely different problem because the average house service is a ¾-inch line and has a ⅝-inch meter and the actual use of water in homes does not begin to reach the maximum capacity of either the service or the meter.

Superintendents should not be concerned with domestic flows over 2 gpm for almost any meter can register quite accurately flows at that rate or higher. Surveys made throughout the country show that considerable water is used at a rate less than ¼ gpm. In the average home, one drop per second from a leaky faucet amounts to 7 gpd. The toilet flush valve is the greatest offender, for approximately 90 per cent of leakage in the home is directly traceable to this one item.

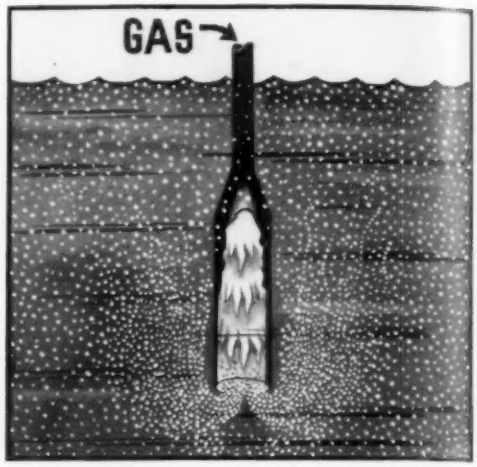
Summarizing this discussion on water leaks and unaccounted-for water before the Water Works Operators' Conference in Illinois, A. P. Kuranz, Superintendent, Waukesha Water Department, Waukesha, Wis., said:

> "If there is a desire to improve the revenues of the utility, the most economical and simplest way is to attack it from the meter first. We have discussed the matter of repairing leakage in mains and services, and enlarged somewhat on the matter of under-registration and slippage of meters. Studying the cost of making these repairs, it seems that for the money invested, the loss due to under-registration and slippage in meters can be more easily recovered than in either the repair of mains or service leaks. Since every water department has a meter-repair department, a well-organized plan of repairing and testing meters can easily be carried on without any additional expense; in fact, we believe that the increased revenue obtainable through the careful testing and repairing of meters will more than pay for the actual time devoted to this phase of your operation.

A REVOLUTIONARY ADVANCE!

RECARBONATION BY MERELY BURNING GAS UNDER WATER

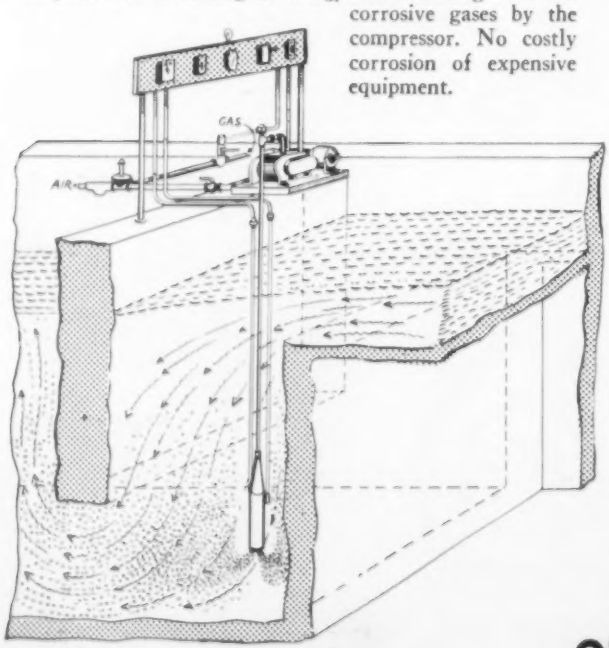
Water Supply for City of 200,000 Completely Recarbonated with ONE 5" Gas Burner



Science is continually surprising the world with unbelievably simple solutions for formerly complicated processes. This time it is water recarbonation which, overnight, has been amazingly simplified. Recarbonation of lime-softened water has been one of the most complicated, most cumbersome, and least controllable processes in the entire field of municipal engineering. Overnight, a new application of a recent discovery, "submerged combustion", has reduced the process of recarbonating water to one of extreme simplicity.

Gas from city gas mains is merely burned in a recently perfected under-water gas burner. The CO_2 copiously formed and liberated by the combustion emerges from the burner in a very finely divided state, is immediately absorbed in the water, and thoroughly recarbonates it.

No massive furnaces and cumbersome equipment, as in the past. No scrubbing of CO_2. No handling of moist corrosive gases by the compressor. No costly corrosion of expensive equipment.



Submerged Combustion Process of Recarbonation
Process Fully Protected by Basic Patents

Proved at Oklahoma City

At Oklahoma City, a center of nearly 200,000 population, the new system has been in operation nearly two years, under the supervision of Leroy H. Scott, Supt. of Filtration. In this period the entire normal water supply (16 M. G. D.) has been successfully and continuously recarbonated by one 5" submerged burner. Mr. Scott's cooperation with the Ozark Chemical Company in perfecting its new process was publicly recognized at the 1940 Convention of the A. W. W. A., where he received the George W. Fuller Memorial Award on two citations, the first reading "The Adaptation of under-water gas burning in developing the interesting scheme of recarbonation of water by simple and novel submerged combustion." The new process was made the subject of an exhibit at this convention. Municipal engineers from many states studied the exhibit and expressed belief in the revolutionary possibilities of the process.

Advantages of the new process may be summarized as follows:

1. LOWER INSTALLATION COST, due to less and simpler equipment.
2. LOWER OPERATING COST, running as low as 35c per million gallons at Oklahoma City.
3. HIGHER CHEMICAL EFFICIENCY, due mainly to a 10% to 20% loss of CO_2 during scrubbing, under old methods.
4. LOWER MAINTENANCE due to simplicity of equipment.
5. 100% CONTROLLABILITY.
6. AUTOMATIC OPERATION, reducing labor expense.
7. NO CORROSION, as corrosive gases derived from burning fuels no longer scrubbed and compressed.
8. NO DIFFUSERS, which corrode and require constant cleaning.
9. NO PLANT INTERRUPTION TO INSTALL. Apparatus is merely mounted in position, connected and started.

Municipal engineers throughout the country are investigating this process. We will gladly send complete information, without cost or obligation.

OZARK CHEMICAL COMPANY

Cosden Bldg. **Tulsa, Oklahoma**

Sewage Sludge Uses—Stream Pollution

English Trucks Operate on Sewage-Sludge Gas

A Recent Report from London, England, states that trucks and automobiles of the Middlesex County Government will soon be operating on sewage-sludge gas, a by-product of the county sewage plant, to save gasoline. Middlesex County, a part of metropolitan London, is building a $35,000 plant to make use of this by-product in its motor vehicles. Similar use of sludge gas has been reported as common in Germany. Complete utilization of the surplus gas, which is now burned as a waste product, will provide an estimated motor fuel equivalent to more than 300,000 gallons of gasoline a year. This amount of fuel, at present prices in England, would cost $95,000. The cost of compressing sludge gas equivalent to a gallon of gasoline is about 6 cents.

Middlesex County plans first to equip its Drainage Department vehicles with gas cylinders, then to extend their use to other county vehicles, and finally to offer the gas for sale elsewhere.

During the World War, 1914-1918, sewage sludge was distilled in England to secure gas for similar purposes.

A New Way to Check Stream Pollution

A New Attack upon the old problem of eliminating stream pollution is being made at Rutgers University, which is conducting a chemical and bacteriological study of industrial wastes in New Jersey. The object of the research is to find by-products of industrial wastes which can be used profitably. If this objective is accomplished, the mills, factories and plants which now deposit their wastes in streams will be encouraged to make expenditures to treat these wastes and render them harmless before discharge into streams or trunk sewers leading to plants treating domestic sewage.

New Jersey has laws prohibiting the pollution of streams, but they are not rigidly enforced in many cases, because no economical methods of treatment are available, and under these conditions the laws may place the industries at disadvantages, resulting in the possibility that the industrial plants may close down or move away, thereby throwing thousands of New Jersey workers out of employment.

At present some 700,000 tons of solid wastes are deposited annually in New Jersey waterways by industrial plants. This is equivalent in bulk to the sewage of about 3,000,000 people. With the population of the state only about 4,000,000, it is evident that the situation is serious.

From 1,213 of the 1,792 industrial plants in the state's most highly developed mill and factory section, waste and water samples have been collected, together with full information regarding them. The 1,213 plants use approximately 54,640,000 gallons of water daily and discharge about 43,561,500 gallons of waste every 24 hours. Most of the sludge is deposited in the Delaware, Elizabeth, Hackensack, Passaic, Rahway and Raritan Rivers and their tributaries. Included in the research work is the study of domestic waste. Two previous Federal surveys revealed that 85 per cent of the state's population is served by sewer systems, but more than 200 municipalities with more than 1,000 population have no sewers. Some 40 New Jersey towns and cities have sewer systems but no treatment plants, and, while the sewage of more than 2,000,000 is partially or completely treated, the sewage of some 800,000 people is disposed of in cesspools or septic tanks or deposited on the ground.

California Regulates Sewage Used on Crops

Communities and Individuals in California using sewage effluent or sewage sludge for irrigation or for fertilizing crops are regulated now by the State Board of Health, from which they must obtain a permit. The regulations state that they are liable as agents if they violate any of the prohibitions of the public health laws. The following list from the American Public Works Association is a digest of the regulations which have been adopted by the California State Board of Health:

1. Raw, i. e., untreated sewage shall not be used for irrigating growing crops.
2. No sludge or screenings shall be used for fertilizing growing vegetables, garden truck, low-growing fruit or berries, unless adequately processed.
3. Settled or undisinfected sewage effluent shall not be used.
4. Effluent meeting certain prescribed bacterial standards can be used.
5. No cross-connections are permitted between pipe lines carrying sewage, sludge or effluent and pipe lines carrying domestic water supplies.

Attend Your Local Sewage Works Conferences

"You see, it's the Sewer and Water Division!"

AUTOMATIC MODULATION CONTROL FOR MOBILE POLICE RADIO TRANSMITTER...

Another RCA First

★ ★

New 22-Watt RCA Mobile UHF Transmitter TYPE MI-7824

AMC provides automatic adjustment of microphone input which minimizes need to repeat signals—speeds communication by assuring dependable clarity of received signal

LOUD VOICES—LOW VOICES—all types of voices are clear and understandable as transmitted by the new RCA MI-7824 . . . the only mobile transmitter with Automatic Modulation Control.

Built to withstand vibration—easy to service—thoroughly reliable—simple to operate—this outstanding UHF transmitter is engineered to meet the specific needs of police radio service. Wide experience in this field has enabled RCA engineers to develop components of reduced size which effect substantial reductions in transmitter size and weight. We welcome any inquiry, knowing that a detailed understanding of the RCA MI-7824 will increase your respect for it as an equipment that delivers unusual performance at a low cost.

- Crystal Controlled—Meets F.C.C. Requirements
- Automatic Modulation Control (AMC)
- Six-Volt Battery Operated
- Twenty-two Watt Rating—Strong Signals
- Rugged Durable Construction
- Easy to Install—Sub-base Mounts Separately
- All Cables Supplied Complete with Plugs
- Covers Range of Thirty to Forty Megacycles
- Improves Two-way Communication
- Can Be Completely Operated by Test Microphone at Transmitter—Saves Many Steps

★ ★

FOR HEADQUARTERS
RCA Type MI-7825 UHF Transmitter

Same basically as RCA's outstanding mobile transmitter. Operates from 115 volt, 50/60 Cycle Power Supply. 25 Watt Rating. One-fifth the overall size of equipment with the same rating available but a few years ago.

Use RCA Tubes for Reliable Performance Night and Day

RCA for POLICE RADIO

RCA Manufacturing Co., Inc., Camden, N. J. • A Service of the Radio Corporation of America

Public Health Improves

1938 *Statistics from Large American Cities*

In a Recent Issue of the *Quarterly Bulletin* of the Department of Health of the City of New York appeared a summary of the vital statistics of the larger cities of the United States, furnished through the courtesy of the local health officers of the various cities. Inasmuch as the total population of this group of cities amounts to nearly 27,000,000, these statistics may be regarded as reflecting present-day health conditions in the larger centers of population in the United States. Judging by the general death rate and the infant mortality for this large urban population, the health conditions were generally good. During 1938 the general death rate was 10.6 per 1,000 of population, and the infant mortality 42.0 per 1,000 live births.

The birth rate for this urban population was 15.3, representing an excess of births over deaths of 4.7 per 1,000 population. In 1937 in this same group of cities the birth rate was also 15.3, but as the general death rate was 11.6, the excess of births over deaths amounted to only 3.7 per 1,000 population. In 1938 the highest birth rate, 20.7 per 1,000, was registered in Washington, D. C., with Pittsburgh and Denver tied for second place with a rate of 20.4. The lowest birth rate, 11 per 1,000, was registered in Los Angeles.

The accompanying table shows the estimated population, the births, deaths, infant deaths and stillbirths for 24 large American cities. It is important to remember that the rates for all causes of death are "crude" rates expressed for 1,000 of population. Inasmuch as such crude rates are markedly influenced by the age and race composition of the population they should not be used as indices of the relative healthfulness of the various cities. Another factor to be considered is the proportion of non-resident deaths occurring in the different cities. In both Boston and New Orleans one-fifth of the deaths are among non-residents, and Portland, Ore., Pittsburgh and Minneapolis have nearly as high a proportion. The age composition of the population does not affect the infant mortality rate, for this is expressed as the number of infant deaths per 1,000 births. This rate may therefore be used in making comparisons among the different cities.

VITAL STATISTICS OF 24 LARGE AMERICAN CITIES—1938

City	Estimated Population	Live Births		Deaths		Non-Resident		Infant Mortality				Stillbirths	
								Under 1 Year		Under 1 Month			
		No.	Rate (2)	No.	Rate (2)	Deaths	% (3)	No.	Rate (4)	No.	Rate (4)	No.	Ratio to 1,000 Births
New York	7,491,790	102,045	13.6	73,775	9.8	2,258	3.0	3,910	38.3	2,524	24.7	4,995	48.9
Chicago	3,607,000	51,660	14.3	35,068	9.7	1,524	4.3	1,743	33.7	1,157	22.4	1,338	25.9
Philadelphia	2,053,327	30,739	15.0	24,309	11.8	(1)	....	1,297	42.2	824	26.8	842	27.4
Detroit	1,650,000	28,890	17.5	12,826	7.8	1,183	9.2	1,197	41.4	775	26.8	893	30.9
Los Angeles	1,436,256	15,747	11.0	13,305	9.3	(1)	....	894	56.8	391	24.8	474	30.1
Cleveland	945,600	15,833	16.7	9,567	10.1	1,121	11.7	566	35.7	394	24.9	454	28.7
Baltimore	862,059	13,149	15.3	10,798	12.5	1,183	11.0	692	52.6	366	27.8	592	45.0
St. Louis	861,453	14,361	16.7	10,620	12.3	(1)	....	597	41.6	348	24.2	668	46.5
Boston	808,504	15,917	19.7	10,850	13.4	2,171	20.0	735	46.2	504	31.7	382	24.0
Pittsburgh	701,879	14,307	20.4	8,126	11.6	1,515	18.6	623	43.5	398	27.8	514	35.9
San Fran	693,000	8,509	12.3	8,514	12.3	1,038	12.2	252	29.6	174	20.4	181	21.3
Wash., D. C.	627,000	12,998	20.7	8,098	12.9	(1)	....	625	48.1	398	30.6	452	34.8
Milwaukee	620,000	10,199	16.4	5,201	8.4	667	12.8	396	38.8	279	27.4	201	19.7
Buffalo	599,273	10,393	17.3	6,952	11.6	853	12.3	580	55.8	382	36.8	328	31.6
New Orleans	523,000	10,284	19.7	8,076	15.4	1,632	20.2	834	81.1	....	....	432	42.0
Minneapolis	492,113	8,866	18.0	5,190	10.5	972	18.0	301	33.9	216	24.4	265	29.9
Newark	458,000	7,936	17.3	5,116	11.2	636	12.4	310	39.1	195	24.6	247	31.1
Kansas City, Mo	423,600	6,433	15.2	5,157	12.2	675	13.1	293	45.5	179	27.8	171	26.6
Rochester	339,563	5,482	16.1	3,275	9.6	483	14.7	196	35.8	149	26.8	126	23.0
Jersey City	336,002	4,344	12.9	3,523	10.5	497	14.1	248	57.1	153	35.2	109	25.1
Portland, Ore.	334,516	5,088	15.2	4,004	12.0	790	19.7	156	30.7	108	21.2	98	19.3
Columbus, O.	333,646	5,689	17.1	4,240	12.7	704	16.6	251	44.1	149	26.2	182	32.0
Toledo	311,451	5,118	16.4	3,523	11.3	469	13.3	237	46.3	160	31.3	132	25.8
Denver	310,000	6,331	20.4	4,352	14.0	(1)	....	318	50.2	(1)	....	136	21.5
Totals	26,819,032	410,318	15.3	284,464	10.6	20,371	.....	17,251	42.0	10,223	24.9	14,212	34.6

(1) not available. (2) per 1,000 population. (3) per cent of total deaths. (4) per 1,000 live births.

Pre-Natal Blood Tests in Nine More States

With New Laws Approved by six additional states this year, a total of nine states soon will provide for or require blood tests of expectant mothers in an effort to prevent transmission of syphilis to children, according to a report of the Council of State Governments. California, Iowa, Maine North Carolina and Oklahoma governors have signed blood test acts passed by their legislatures in recent months and the new act in Pennsylvania awaits the approval of the Governor. New York, New Jersey and Rhode Island have had such laws for more than a year. In Illinois a blood-test proposal has passed the house. Several of the new acts became effective July 1, 1939, while others go into effect in 1940.

Most of the blood-test laws are compulsory, but Oklahoma and Pennsylvania acts read that the test will be provided "on request." Typical of the laws is the Maine act, which holds physicians responsible for taking the blood sample, to be tested free of charge by a laboratory approved by the State Health Department. If the expectant mother is found to be infected, the physician is required to report to the State Health Bureau.

North Carolina, California, Iowa and several other states fix penalties of $10 to $500, or jail terms, for negligence by physicians in testing or reporting on blood samples. Maine, New Jersey and New York make no provision for fine or punishment for violations. All birth and still-birth certificates, however, must include a statement as to whether or not the mother's blood was tested.

According to health statistics, 60,000 babies are born in the United States each year with congenital syphilis. An expectant mother with the disease who is treated early enough has one chance in six of bearing a live, healthy infant, while a normal woman has three chances in four.

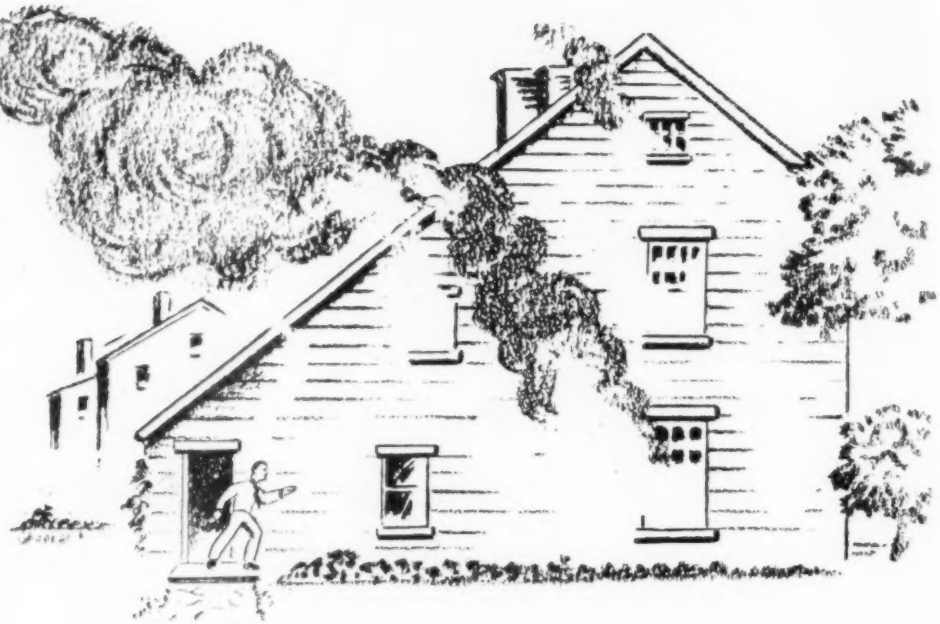
Typhoid Fever Rate Still Low in New York

Since New York City, the largest metropolis in the United States, has a water supply which is adequately protected, pasteurized milk supply and an effective health administration, typhoid fever in the city no longer occurs in the form of more or less extensive outbreaks. Similar situations prevail in other large or small cities throughout the United States, thanks to sanitary engineering and adequate health inspection and administration.

The death rate from typhoid fever in 1939 was the lowest ever recorded in New York City. Below is a history of typhoid cases and deaths in New York City from 1900 to 1939 inclusive:

Year	Cases	Deaths	Death Rate per 100,000
1900-1909 (average)	3,514	665	16.6
1910-1919 (average)	2,262	339	6.8
1020-1929 (average)	958	126	2.0
1930	497	62	0.9
1931	603	77	1.1
1932	560	64	0.9
1933	557	70	1.0
1934	332	44	0.6
1935	314	34	0.5
1936	305	33	0.4
1937	268	26	0.3
1938	268	26	0.3
1939	173	22	0.3

"Where's the nearest fire alarm box?" . . .



Three Fold Fire Alarm Box on Type U1000-6 Pedestal

Such a question wouldn't be asked in a community where an adequate number of boxes are conspicuously placed.

The cost of this more ample protection is negligible when you think of what it can prevent.

Gamewell surveys indicate that a "box a block" in congested, high value districts are none too many. Then in residential sections a box every 500 feet and where localities are sparsely settled, a box at every group of buildings provides ideal protection.

Check up on the fire alarm box situation in your town, then ask the cooperation of Gamewell engineers.

Make the Three-Fold Fire Alarm System your city's "first line of defense against Fire!"

THE GAMEWELL COMPANY

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Public Safety

Police Motorcycles of Bridgeport

THE BRIDGEPORT, CONN., POLICE DEPARTMENT makes full use of the speed and mobility of its motorcycle officers. Four of the twelve Harley-Davidsons are equipped with police-radio receivers, and can thus, wherever they are, be directed at any time to proceed anywhere. See them all at right.

Why Green and Amber at Same Time?

NEW YORK, N. Y.—We quite agree with a Concord, N. H., citizen who "can't see any sense in having both green and yellow showing at the same time." There is no question that such a combination of signals is confusing, and we believe that traffic-signal manufacturers should discourage the use of such combinations.

PAUL P. HORNI,
Vice-President, Horni Signal Mfg. Corp.

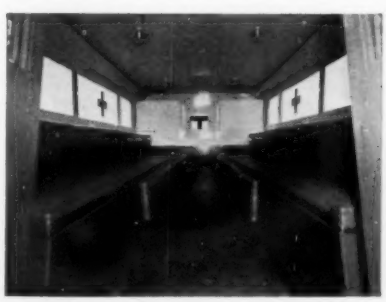
MOLINE, ILL.—Green and amber, showing together, indicate *caution* in states where those two colors are permitted to show at the same time. A person who drives into an intersection when green and amber are showing is guilty, or not guilty, of an infraction of ordinary traffic rules to just the same extent as if *amber* had been showing alone. When green-and-amber show together between green (alone) and red, the green-and-amber have the same meaning as has amber alone between green and red. My understanding of this case is that a *caution* period is provided between the off-going green and the on-coming red, and that a driver is expected to judge for himself whether a sudden stop, or proceeding during the caution period, involves the greater hazard. Unless a hazard will result from a sudden stop, a driver is expected to avoid entering an intersection during the caution period. Green, green-and-amber, red and repeat, is the sequence also in Michigan and the District of Columbia.

H. I. TURNER,
Eagle Signal Company.

Pontiac Police Write to New Drivers

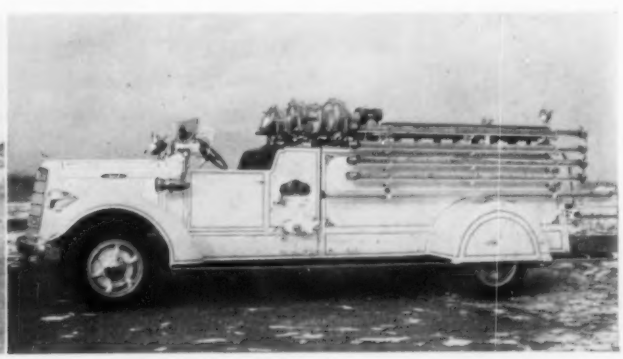
PONTIAC, MICH., first among cities of its size in the 1939 National Traffic Safety Contest, believes in teaching drivers about safety while they're young.

When a Pontiac citizen gets his first driver's license, the Police Department writes a special letter welcoming him as a member of the driving public, and soliciting his cooperation in the observance of laws.—I.C.M.A.



TRUCKS FOR FIRE COMBAT AND RESCUE

These three Mack trucks are: (left) interior of the Lindenhurst, N. Y., first-aid and booster truck carrying a 100-gallon pump, 150-gallon tank, H-H inhalators, and three stretchers; (below at left) Babylon, N. Y., truck with 400-gallon booster tank, 200-250-gallon pump, hose body for 1,000 feet of 2½-inch hose and oversize reel carrying 300 feet of 1-inch booster hose; (at right) Briarcliff Manor, N. Y., patrol and squad car with 250-gallon pump, four lengths of 2½-inch hard suction hose, 250 feet of ¾-inch booster hose, 250-gallon water tank, 1,800-watt floodlight generator



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CONVERTIBLE GAS-DIESEL ENGINES
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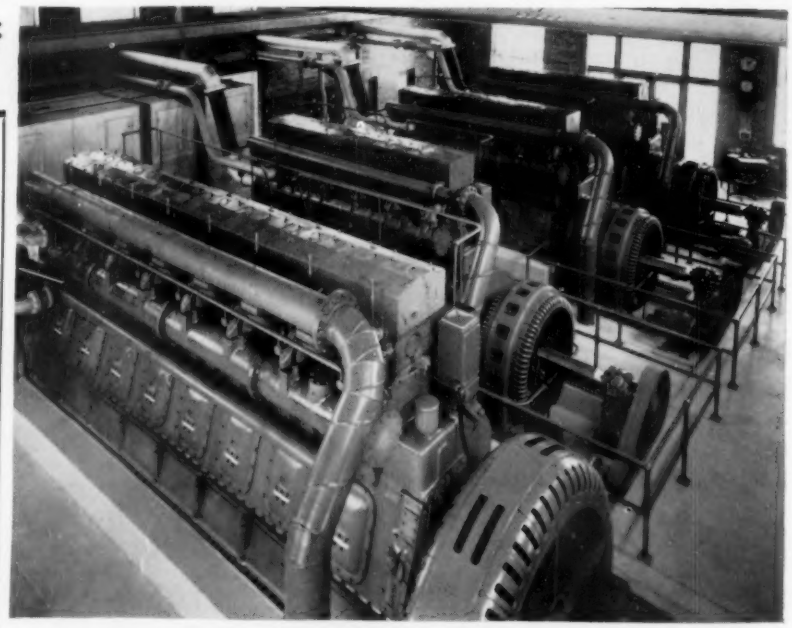

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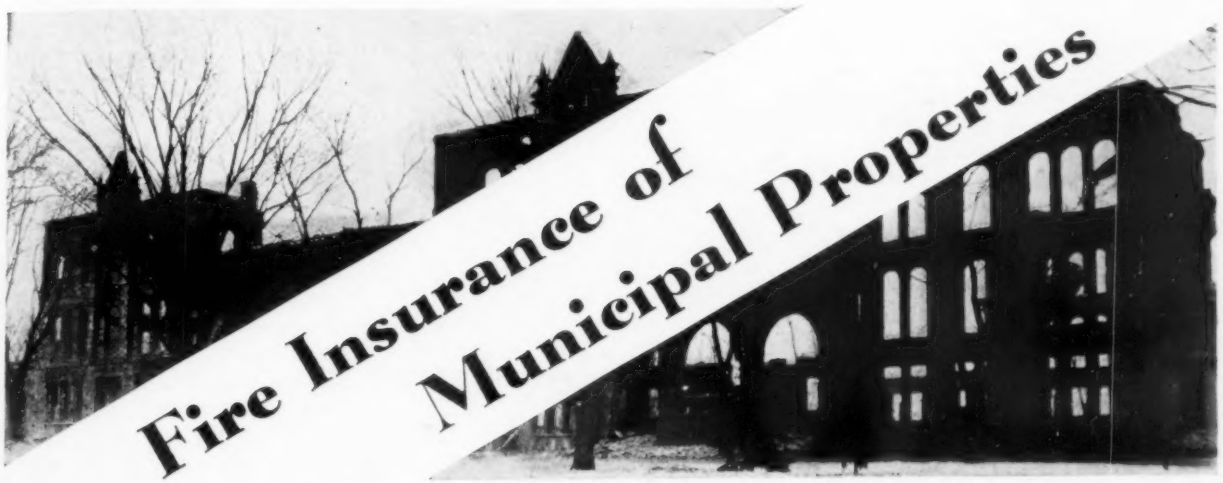
Vol. LV, No. 6 The American City JUNE, 1940



Fire Insurance of Municipal Properties

FIRE insurance rates, like many other costs, seem excessive in proportion to the amount of coverage or the amount of the bill. The householder who pays $28 for three years' premium on $7,000, feels that the price of protection is most moderate because he knows of heavy fire losses which have been sustained on dwelling houses in his own or neighboring communities and does not feel that 2½ cents per day is too much to pay for $7,000 worth of protection. On the other hand, the citizen owning property requiring a premium of $2,800 or $28,000, even though at half the above rate of 40 cents per $100, finds his fire-insurance bill a matter for cogitation. It is a lot of money to pay for something usually invisible. Is it too much to pay? Isn't there some easier method of securing the same thing?

The cost of insurance on municipal property is a subject that crops up perennially and is right now on the tongue of nearly every municipality of less than 1,000,000 population. Periodical surveys almost invariably indicate that such costs are excessive in relation to the recoveries made for losses sustained.

One reason for this is that surveys do not cover a sufficiently long period of time to permit the law of averages to operate and disclose the true cost. Some cities may never have had a municipal building burn up. Is this a special dispensation that can be relied on, or may there be a disastrous fire next year?

Consider the recent experience of Providence, R. I., where a public school was destroyed by fire on January 4, 1940, with loss estimated at $400,000. Thirty years ago the city created a self-insurance fund. During ten years annual appropriations of $5,000 were deposited. At the time of the recent loss the fund contained approximately $77,000. However, even if the fund had received a deposit of $5,000 every year, had been economically managed, and had not been drawn upon for any other losses or purposes, the loss of January 4 would have resulted in a deficit of approximately $150,000 for a 30-year experiment in the field of self-insurance. Incidentally, an annual payment of $5,000 in premium to fire-insurance companies would have paid for $2,500,000 insurance at an average rate of 20 cents per $100, so that $18,000,000 insurance would have cost $16,000 per annum. On that basis the premiums received by the insurance companies during 25 years would be required to equal the one loss of $400,000 without taking into account the legitimate business expenses of the companies, *including substantial taxes*. Yet during those 25 years, city administration after administration would feel, and surveys and questionnaires would disclose, that the city's insurance costs are much larger than the recoveries made for losses sustained.

Another instance, quoted from "The History of Various State Insurance Experiments" by Percy F. Garnett, is worthy of study by prudent municipal officers:

> The city of Fitchburg, Mass., solved the insurance cost problem by carrying its own insurance on its high-school building destroyed early in 1935, thus saving $1,500 in premium. However, the fire loss was estimated at $750,000, with replacement expense of at least $1,000,000. In ten years the city saved $15,000; in 100 years it would have saved $150,000, and in order to save $750,000 the city would have had to avoid fire loss on the building for 500 years.

The new Fitchburg school is insured, but borrowings to build the new school added 90 cents to the tax rate for 20 years. The fire-insurance rates on the destroyed school had been 60 cents on building and $1.12 on contents per $100, which the city officials believed exorbitant; but though on numerous occasions they were offered expert advice on fire prevention, protection and rate reduction, they self-insured by merely not insuring.

Getting to the Bottom

The problem of insurance costs is more deeply rooted than any question of rates. More often than not, it is a question of procedure. In fact, it is conceivable that insurance costs may be excessive despite the fact that the rates at which the insurance is written are fundamentally equitable.

In many cities, an attempt is made to place a part of the insurance required with each insurance agent who is a citizen and a taxpayer. As a result, hundreds of policies are carried, and the total amount carried often exceeds the value of the property insured, and inevitably a waste of premium money is the consequence. Why waste this money?

Every municipality has the means at its disposal to rectify such situations. Instead of attempting to deal with numerous agents who issue a multiplicity of policies, many cities have found it advisable to deal with only a limited number of agents, who function as a group and who assume responsibility for properly analyzing the city's insurance requirements. Where local considerations demand that all the agents in a community must participate in the commissions to be derived from the writing of city insurance, arrangements may usually be made with such a limited group to make equitable distribution of commissions to fellow agents who must be taken into consideration.

The first step in any such program is the careful selection of agents composing the group that will act as insurance advisors. In cooperation with such a group, arrangements may then be made for an appraisal of city properties, in order to arrive at the amount of insurance actually required.

Analysis of rates should also be taken into account. Substantial reductions in fire-insurance rates can often be obtained if relatively simple and inexpensive improvements are made. If the guidance of a group of competent insurance agents is followed in this respect, worth-while economies may be effected. After questions of values, amounts of insurance, forms of coverage and rates have been determined, the group of agents that has been selected as counselors should then be asked to provide the insurance desired through a minimum number of policies. Often, municipalities of considerable size carry all of their insurance under a single contract, but if it is thought advisable to distribute the insurance more widely, there is little reason to have any great number of policies.

Appraise Insured Properties

Accurate appraisals of insured buildings should be made periodically and timed to correspond with the renewal of policies. This provides a necessary safeguard against over-insurance, which is often associated with the "hit or miss" estimate method of determining insurance values. Except in the states having "valued-policy laws" (under which in the event of total physical loss the face amount of a fire-insurance policy must be paid notwithstanding the true value of the building is less) fire-insurance policies are actual indemnifying contracts, as indeed all insurance contracts should be, and therefore up-to-date and accurate appraisals of actual value are essential. In most valued-policy-law states, as well as in other states, such appraisals are essential to prevent the insured from incurring the penalty which is provided by the Coinsurance Clause in case of insufficient insurance at the time of a partial physical loss.

Very few cities have their properties appraised periodically for the purpose of accurate insurance coverage. In most cases where appraisals have been made they are not kept up to date.

The four elements of a building considered by fire-insurance companies and rating bureaus as specifically contributing to fire hazards are location, construction, occupancy, and fire protection. There are also fixed improvements such as heating, lighting and power equipment which constitute a fire hazard. Deficiencies in any of these items result in penalties and high insurance rates. Exposure penalties resulting from adjacent frame sheds or other hazardous structures can be remedied by providing wired-glass windows or by removing the exposing structures. Internal hazards due to defective heating and lighting equipment, poorly constructed wall partitions, excessive quantities of poorly safeguarded combustible materials, and unnecessary or unprotected floor openings, can be removed.

Some penalties resulting from certain inherent hazards can be offset by credits which are offered by the standard rating systems. Such credits are applied to the rating of a building which has a sprinkler system, fire extinguishers, interior fire-alarm systems and central office alarms.

Appraising the Risk

Usually only the very large cities have the spread of risk which is an element of the law of averages as applied to insurance. Unless a municipality has a sufficient number of separate properties not subject to the same fire, even adequate records of insurance costs and losses over a long period will not be a trustworthy basis for appraising cost. Insurance companies get the necessary spread of risk by writing insurance on the properties of many municipalities in all states, and their rates are accordingly adjusted to the wide spread of risks thus obtained.

Fire-insurance rates are predicted upon broad averages of classes of risks, taking into consideration building construction, inherent hazards, exposures and fire-protection facilities. Every state insurance law provides that there shall not be unfair discrimination in fire-insurance rating, and singling out any one municipality for a rate reduction would appear to be unfair even though the municipality's loss experience seemed to justify it. On the other hand, in certain fields of casualty insurance —such as workmen's compensation, general and public liability, automobile and plate glass—the tariffs do provide for merit rating, and municipal records of premiums and losses under these forms of insurance are now being utilized to effect voluntary adjustment in premium rate. These casualty insurances involve the human element, including third parties, and each case has individual characteristics which permit more or less special ratings. Fire insurance, however, deals with tangible physical features of a building, and each of these is given certain charges and credits in accordance with experience with many fires in which such features have contributed to or mitigated the loss.

The Texas Plan

Only in the state of Texas is there a procedure whereby all

properties in a municipality, privately as well as publicly owned, secure percentage reductions or penalties, as the case may be, in fire-insurance rates graduated according to the loss ratio under all fire-insurance policies written on the properties in the particular municipality by all the insurance companies during the preceding five years.

This experiment in experience fire-insurance rating is being tried by the State Insurance Commission on the theory that since Texas is a large state with fire-insurance ratios of premiums to losses varying by sections and localities, the rates produced by the uniform rating schedules should be adjusted periodically.

The Texas Table of Fire Record Credits and Penalties provides the following credits: 5% if loss ratio during the preceding five years was 45% to 52%; 10% if 38% to 45%; 15% if 31% to 38%; 20% if 24% to 31%; and 25% if it was 24% or less; and penalties of 5% if the loss ratio was 58% to 65%; 10% if 65% to 75%; and 15% if 75% or higher. If the loss ratio for the preceding five years was 52% to 58%, there is neither a credit nor a penalty.

The Texas plan, as with most experiments, is as valuable a guide in its discrepancies and inequalities as in the constructive experience it will develop in the effort to attain more sensitive rates. If such rates are desirable, then it is necessary that the law under which they operate be sound and fair. These features of the Texas plan should therefore be studied: whereas the maximum credit is 25%, the maximum penalty is only 15%; that only the losses on *insured* properties are taken into consideration, ignoring the losses sustained on self-insured and on uninsured properties and the losses not recovered on under-insured properties; that every municipality having an average annual net fire-insurance premium volume of only $1,500 may qualify for a credit notwithstanding that the spread of risk of its privately and publicly owned properties is very much less than the spread of risk of a large city such as Dallas with a premium volume averaging $2,000,000; that a possible large loss on a single building can convert a substantial credit into a substantial penalty in rate for a period of five years; that five years is not a sufficiently long period of time upon which to base experience fire rating; that individual properties with low loss experience contributing to the low ratio of the municipality which is rewarded by a substantial rate credit may subsequently self-insure, thereby depriving the insurance companies of the premium income therefrom, and the spread of risk which contributed to the low loss ratio which was responsible for the rate credit.

Keep Visible Records

The first step in straightening out the fire-insurance situation in any municipality is to see that accurate insurance records are maintained. They should be carried back as far as possible and maintained up to date. The data for each building can be put on a 3 x 5- or 5 x 8-inch card with colored removable tabs to indicate near expirations. Obsolete cards should be placed in an inactive file and segregated by properties as a cost experience record.

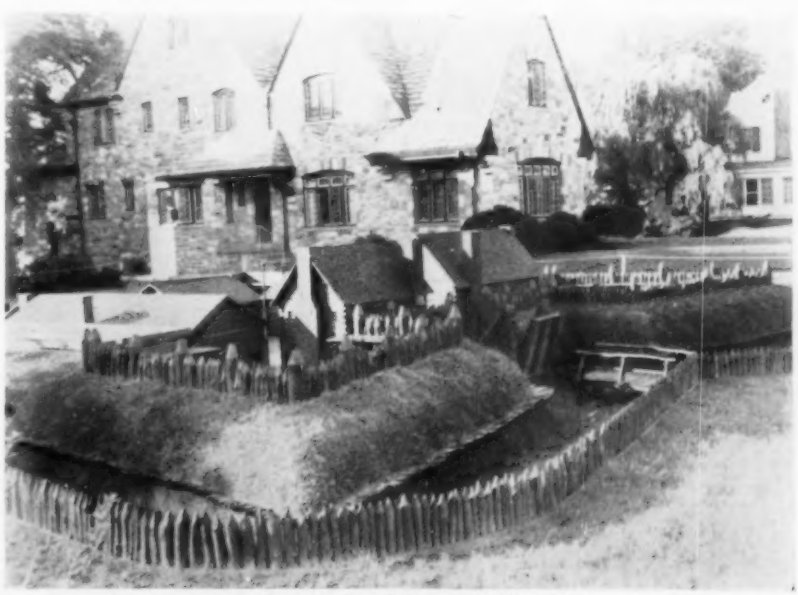
When these records have been run back for twenty years, or, in other words, when twenty years of these records have been accumulated, there will then be available the character of experience on which the fire-insurance companies are likely to act of their own volition with the municipalities individually and collectively aware of the fairness of the action taken.

A Historic Landmark

FOLLOWING the example set by other communities which have played important parts in American history, the city of Sunbury, Pa., has marked the site of one of its historic structures. Here is a miniature Fort Augusta, famous in early days as a haven for the settlers. It is erected along the bank of the Susquehanna River on the spot where the original fort once stood, overlooking the broad expanse of the river.

The construction is of small wooden logs and rough boards, and is an exact duplicate of early forts, with drawbridge and stockade. Lending emphasis to the development of the community through the years, the house in the background of the accompanying photograph demonstrates the change from the old log cabin to present-day housing. A huge native stone marker upon the bank of the river, parallel with the main highway, calls attention to the landmark, which has been viewed by thousands of people, many of whom have traveled long distances to see it.

I. B. KRAMER.



Fort Augusta in Miniature, Sunbury, Pa.

Planned Beauty and Permanence in the Parks of Honolulu

By J. Roy Petersen

DURING the twelfth century Ghengis Khan built for himself a beautiful park in China and brought to it on the backs of elephants full-grown trees from all Asia. Far-wide admiration was bestowed upon the great leader for his beautiful gardens.

Perhaps in the case of the noble and courageous Khan there was a plan, a well-crystallized vision of design, but we may safely say that since the earliest days of history there are few cases in which a city arose from a blueprint drawn before growing pains began. Unfortunately, in the random growth of most cities, parks are an afterthought.

In Hawaii, Honolulu grew at first without plan, winding and twisting to fit the terrain of the volcanic slopes and valleys of the island of Oahu. The pressing demands of a rushing civilization encroached upon acre after acre of the relatively small amount of available land. And in all this ever-increasing crowding of urbanization there was, less than ten years ago, no plan or provision for future park development.

Dreaming Dreams and Facing Facts

However, Honolulu with its equitable year-around climate possesses every natural advantage to make it one of the most beautiful cities in the world. When the Honolulu Park Board was created, in 1931, it had the vision to realize this, and yet it had the realistic

PHOTOGRAPHS BY COURTESY OF THE HONOLULU PARK BOARD

Romantic and historic St. Thomas Square, near the center of Honolulu, offers a cool oasis to the residents. The silvery plume of the Beatrice Castle Memorial Fountain plays night and day

One of the few developed parts of Kapiolani Park is this section with the bandstand. The famous Royal Hawaiian Band concerts attract thousands on Sundays. While progressive work goes forward in other sections of what may become a true park, here the public enjoys the best that Kapiolani has to offer

philosophy to face facts, to prepare a workable, realistic plan.

The first problem was to choose park locations, and wisely the Board selected undeveloped areas that would otherwise be waste land, marking them for park development. This plan proved profitable to the community in two ways. As the parks have been developed and improved, the land around them has risen in value; and, secondly, the thousands of citizens who do not own land near the parks have gained because the greater land values have yielded greater taxes to the city-county bank account, thus reducing the general tax load.

The philosophy of the Honolulu Park Board stands today unquestioned. The course of action has been planned by these few principles:

Build one park at a time and build it to last forever.

Build it so that it can be kept in prime condition at the lowest possible upkeep cost.

Build it so that it will be beautiful.

Build it to serve discovered specific human needs.

A recent report of the Park Board states its future policy:

"It [the Board] plans to build permanently, so that items of repair and replacement may be reduced to a minimum cost. It is convinced that the wisest course is to develop a park from the 'ground up' (fill and drain properly, add required top-soil, irrigate adequately and plan soundly), instead of giving a piece of ground a few superficial licks and promises and then trying to make the public believe that a park has been created."

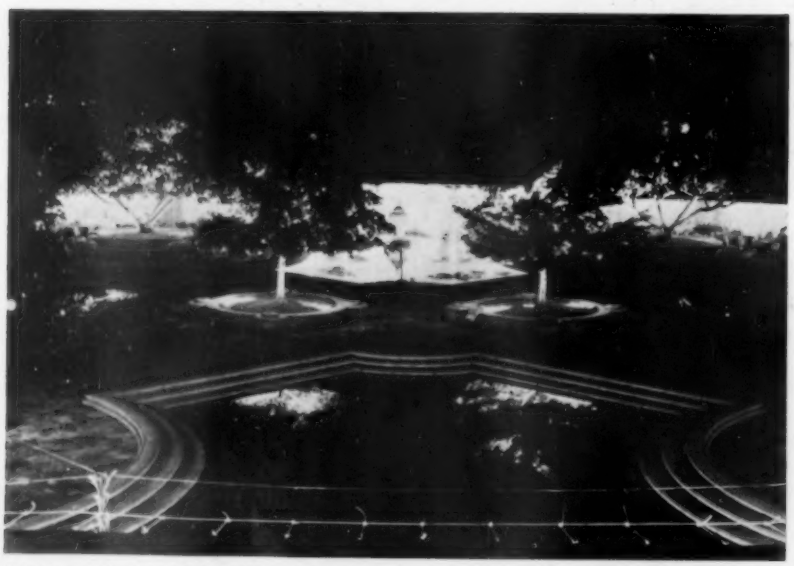
A Decade of Progress

What has been Honolulu's record, you may ask? It is more than impressive.

In 1931 the Ala Moana Park was a dump, hideous and scarred with refuse, an extended area along a beach which *kamaainas* (old-timers) carefully avoided and skirted when showing *malihinis* (tourists or newcomers) the beauties of Honolulu. Today, far yet from being complete, it is shaping into one of the most beautiful parks in America. The rubbish was removed, the land drained, and top-soil filled in over old coral beds. Already the sports center is well on its way, with tennis courts, a bowling green, and a rowing course, constructed by blasting a deep channel through shallow coral beds next to the beach of the park. There is much more in the plans: a three-mile bridle-path; three baseball fields; volley-ball courts; wading pools for children; inland lagoons; a broad yacht harbor; and parking space for thousands of automobiles

Site of Ala Moana Park in 1931, Strewn with Rubbish

Air View, showing the Cleared Area of the Park in 1932 After a Year of Work



Night and the Fanciful Lighting That Add Magic to the Beauty of the Banyan Garden in Ala Moana Park

On Ala Moana the Park Board has spent its most concerted effort in recent years; other projects, however, have been completed in the meantime. Mother Waldron Park, costing less than $32,000, took children off the streets, and became an ideal example of small neighborhood playground development. In one of the most congested areas of Honolulu, this park offers hundreds of youngsters a modern playground where before they had only dismal back-yards, weed-grown back-lots, or the streets. In keeping with its plan to build to last, the Park Board chose materials for Mother Waldron Park for durability, economy, low maintenance and usefulness. Compared with other ineptly laid-out, old-fashioned parks and playgrounds, it fully demonstrates the value of planning wisely instead of going ahead with so-called cheap construction that soon wears out and costs far more in the long run.

In the early days of Hawaii, great rowing races were held annually, with husky, dark-skinned Hawaiians excitedly competing. But gradually interest in the sport dwindled, until there was danger that rowing would die out. Along the Ala Wai, which is a large drainage canal constructed to dry up the old swampy Waikiki district, the Park Board constructed a modern, attractive rowing clubhouse, and already there has been a revival of interest in the sport, with a Regatta Day each September attracting thousands of residents to watch the colorful boat races.

One of the undeveloped areas which the Park Board acquired was some 140 acres in Palolo Valley, an area covered with dense tropical brush and growth. This the park group cleared and turned into a beautiful golf course, one of the most difficult, but one of the most popular.

Back to the old race-track days of King Kalakaua the history of Kapiolani Park goes. In name only is it a park, because the Park Board considers it as an area set aside for development. Before starting to turn this 165-acre tract into a useful park, the Board wants the complete experience of developing Ala Moana Park. Although thousands use Kapiolani Park weekly, to make

(Concluded on page 74)

Density Standards Improved

Beneficial Impact of Public Housing on Land Uses and City Rebuilding

By Jacob Crane and Neil Connor
Assistant Administrator and Project Planner, respectively,
United States Housing Authority

IN the processes of city building and city rebuilding, the writers feel that the low-rental housing program constitutes one of the most powerful instruments which have ever come to hand. In the 300 cities where public housing programs are being carried on, the beneficial impact of these programs upon city planning and city rebuilding are being definitely felt. This influence is important on all the following problems: eliminating slums; providing decent housing for poor families in lieu of dangerous, unhealthful housing; the establishment and development of parks and playgrounds; the furtherance of plans for street openings and street widenings, as well as for streets of specialized uses which present-day needs demand; and the establishment of good standards for appropriate utilization of land and appropriately low densities of building.

In this article we are discussing briefly the last point, namely, the influence of the public housing program upon standards of land use and density. A study of the first 150 USHA-aided projects to go into construction reveals that *the standards of density prevailing in the USHA-aided program are generally far superior to those allowed in municipal zoning ordinances.*

Unquestionably, our communities face an extremely serious problem of so guiding building and rebuilding that irrational, uneconomic and unhealthful overcrowding of buildings on the land is avoided. Zoning ordinances are directed in large measure toward the solution of this problem, and may be assumed to reflect the standards of density at the best level which can be secured through local legislation in the face of the various and conflicting social interests and property interests. In theory, public housing projects could be expected to conform only to these legally established standards, rather than attempt to recognize superior standards. Nevertheless, the analysis which follows indicates the very great advance in standards made by the public housing program as compared with municipal zoning standards.

The 150 USHA-aided projects analyzed here are situated in all parts of the country and in towns of all sizes, with a predominance in communities ranging from 15,000 to 100,000 in population. It is somewhat surprising to find that 45 of these 150 projects are located in areas where no zoning regulations apply at all. Thus, while building by private enterprise in such areas is permitted to crowd the land without any legislative limit, the density* on these USHA-aided projects ranges from 5 families per net acre to about 35 families per net acre, depending upon the type of development found to be appropriate for the particular site. And in this way the housing projects help to establish rational and livable densities even where no community action has imposed standards of density.

Inadequate Density Regulations in Zoning Ordinances

Of the 150 projects, 55 are located on sites covered by zoning ordinances which contain no density regulations, and for these situations the housing projects exert an influence similar to that in communities without any zoning.

Of the remaining 50 projects in the first 150 USHA-aided projects, 40 have densities below the limit established by the zoning ordinance.

Illustrating the way in which this latter group of projects is built to superior density standards:

City	Net Density of USHA Project in Families per Net Acre	Approximate Density Allowed in Zoning Ordinance
Atlanta, Ga.	23	70
Austin, Texas	14	87
Bridgeport, Conn.	37	140
Charleston, S. C.	19	26
Chattanooga, Tenn.	25	109
Cleveland, Ohio	28	36
Columbia, S. C.	20	70
Covington, Ky.	12	22
Dayton, Ohio	21	35
Ft. Lauderdale, Fla.	12	44
Hartford, Conn.	23	140
Knoxville, Tenn.	23	73
Kokomo, Ind.	19	44
Lowell, Mass.	38	124
Memphis, Tenn.	23	44
New Orleans, La.	33	109
Omaha, Nebr.	21	44
Pittsburgh, Pa.	37	70
Yonkers, N. Y.	45	55

In contrast to the predominant very sharp superiority of the project densities quoted above as compared with the zoning limitations, it is notable that for the remaining 10 projects which in some way exceed density limitations, such changes as are required involve in effect merely the extension of an area of less restrictive density to include part or all of the project site. In only one of these cases is project density as high as 30, and in this instance the increase required amounts to only 12. Furthermore, the increase in density is necessary for only part of the site.

This record reflects the thoughtful attention given to city planning and zoning considerations by local housing authorities and the USHA in the formulation and development of the low-rental public housing projects. And it seems to be clear that the influence of the program is very considerable in stimulating and helping to establish superior standards of density.

* In general, densities in zoning ordinances conform roughly to the United States Housing Authority definition of "net density," which is the number of dwelling units per acre of net area of land. Net area is, briefly, the area within property lines, excluding land for future development, unbuildable land, major recreation areas, the land covered by community buildings, group heating plants, etc. The term "families" as used in this article is intended to be synonymous with the USHA term "dwelling unit."

Reducing Magnesium Hardness

Fergus Falls, Minn., Improves Domestic Water Supply with Precipitators and Semi-Automatic Control

By Joseph E. Young
Superintendent-Engineer,
Water and Light Department

THE city of Fergus Falls (population 1930, 9,389) is located in the western part of Minnesota on the Otter Tail River. This river has served as the source of the water supply for the city since the inception of a water system in 1883. Water obtained from this river has a color varying from 5 to 30, an average turbidity of 4, an alkaline hardness varying from 180 to 250 ppm, and a very low bacterial count. The greater part of the hardness is caused by carbonates and bicarbonates of magnesium. The calcium bicarbonates remain practically the same throughout the year, averaging about 70 ppm, so that approximately two-thirds or more of the total hardness is caused by magnesium salts. At all times of the year the water has a characteristic swampy taste and odor. The threshold odor of this water during the last year has varied from 7 to 26.

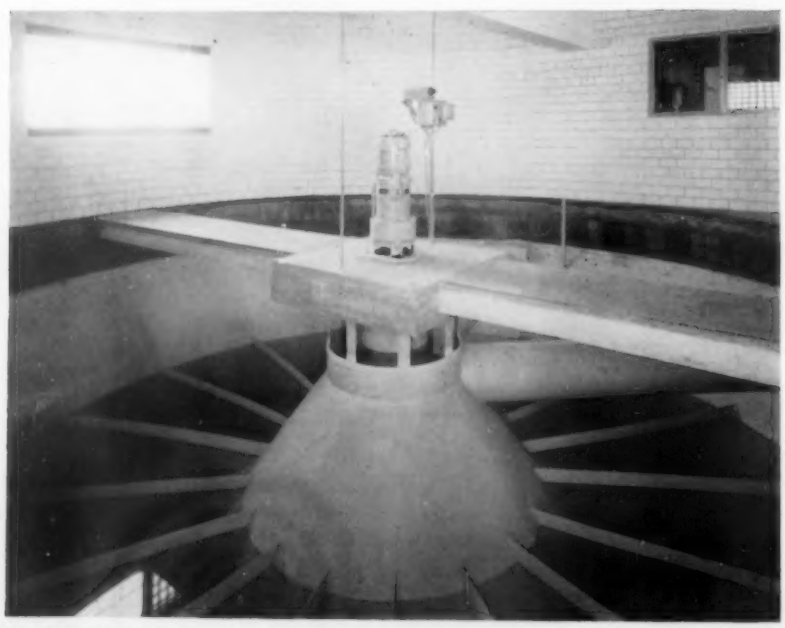
After 1883 the water was pumped directly from the river into the mains and given a minimum of treatment; in fact, until 1928 the water was chlorinated only at intervals. Since the latter part of 1928, however, the water has received at all times either chlorine or chloramine treatment. The city has at no time, however, suffered any epidemic which might be traced to the water supply.

Because of the comparatively simple method of obtaining the supply, consumer complaints naturally followed. The chief complaint, aside from the presence of bloodsuckers, other small aquatic life, and mud in the water, concerned the characteristic taste and odor of the water, which made the water almost unfit for use at certain times of the year.

Treatment Proposed

About two years ago the writer reported to the Water and Light Commission that not only could this water be greatly improved as to taste, odor, color, and margin of safety for human use by installing modern purification facilities, but that if softening were incorporated as a part of the purification process, tangible benefits would be secured by the consumers, benefits which in themselves would justify any increased expenditure necessary for the building and maintenance of a modern water purification plant. The Water and Light Commission, after study of the report as to the construction and maintenance cost of a filtration plant, visited several of the newer water purification and softening plants and were very favorably impressed with the results obtained. They then authorized the employment of Charles H. Spaulding of Springfield, Ill., as consulting chemist. Mr. Spaulding, after study of the local supply, confirmed the feasibility of softening the supply as recommended, and stated that, owing to the later developments in methods of softening, the total storage time necessary would be at the most only two hours, depending on the water temperature. Mr. Spaulding also gave valuable ideas which were later incorporated in the design and maintenance of the plant.

After necessary bonds were authorized by the voters of the city, detailed plans and specifications were drawn. Contracts were awarded to the Lauritzen Co. for the building and structure; Hintgen-Karst Electric Co. for the lighting; Fergus Plumbing and Heating Co. for the heating. Other principal contracts covering equipment and appurtenances were also awarded as follows: The Permutit Co., Spaulding Precipitator equipment; Simplex Valve and Meter Co., rate-of-flow controllers; United States Pipe and Foundry Co., piping and filter underdrains; International Filter Co., recarbonating and metering equipment; Omega



The East Precipitator, with the Water Drawn Down, Showing the Construction of the Conical Guide Plates and Baffles

Machine Co., dry feed machines; Allis-Chalmers Mfg. Co., pumps; Wallace & Tiernan Co., chlorinator; Rensselaer Valve Co., valves.

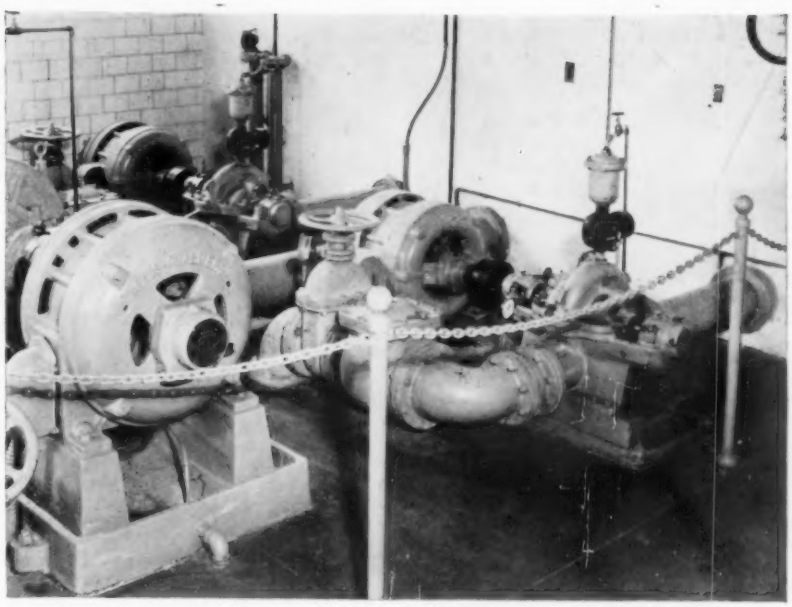
All equipment, piping, control wiring, and appurtenances were installed, without outside supervision, by employees of the Fergus Falls Water and Light Department. The design of the plant, including the structural piping, control wiring, and other necessary equipment, was made by the writer, who drew the necessary detailed plans and specifications and also supervised the construction of the building. M. O. Foss, Fergus Falls architect, furnished the architectural design for the superstructure and for the heating and lighting.

Results Secured

Approximately eight months were required for the construction of the plant, which was placed in operation January 1, 1939, and has furnished since its inception a very desirable and much improved water supply. The hardness of the water has varied only a few points from 70 ppm, which is approximately 4 grains per gallon. This seems a desirable hardness in the water, although at increased cost for chemicals a water of less than 2 grains hardness could easily be produced. The finished water is clear, sparkling, and, of course, free from bacteria; an additional advantage of the softening process being that bacteria are removed before the water arrives at the filters. The threshold odor of the water leaving the plant has been held at about 2.6 and has been found very acceptable.

The Plant

The plant, as designed and constructed, consists of two Precipitator tanks with an inside diameter of 31 feet and an average working depth of 11 feet 6 inches. These tanks have a storage of about 62 minutes at their rated capacity, which is 3 mgd at temperatures above 50° F. Steel plates and baffles constructed within the circular tanks guide the flow of the water, which is agitated by a wheel at the bottom of the tanks, in such a manner that the entering raw treated water passes up through a blanket of sludge, previously precipitated, approximately 8 feet deep. A recarbonation chamber, with a storage of 14 minutes at 3 mgd, is built between the two circular Precipitator tanks. The floor over the recarbonation chamber supports four dry feed machines. These dry feed machines are fed from hoppers, which lead to a penthouse at the roof level of the plant, where the necessary chemicals are stored. Hose lines, under the floor, leading from the dry feed machines, convey the chemicals to the raw-water entrance. The raw-water entrance is at the end of the recarbonation chamber and has a storage of ½-minute.



The High-Pressure Pumping Equipment at the Fergus Falls Water Works

Opposite and parallel to the Precipitators, separated by the pipe gallery, is a battery of four filters with a clear well underneath. These filters have a capacity of 2 mgd at the conventional rate of 2 gallons per square foot, per minute. The sludge concentrator, 80 square feet in area, is located at one end of the pipe gallery. A laboratory, office, and storeroom is situated at the operating floor level at the end of the battery of filters. Directly under the laboratory and storeroom are high-service pumps, which are at the pipe gallery level. At this same elevation and at the end of the Precipitators are the boilers and recarbonating equipment. The entire plant is constructed of heavily reinforced concrete, the structure being of so-called monolithic concrete with an interior facing of white glazed tile.

The plant is almost completely automatic, and, in fact, can be run automatically according to the height of the water in the reservoir, although we have not found it desirable to do so. All equipment, pumps, motors, and valves necessary for operation, except the desludging valves, are automatically operated by a control circuit, the switch of which is in the laboratory. The filter valves are operated by solenoid valves which are controlled from four small panels with indicating lights in the wall of the chemical room at the operating-floor level. We have found that this method of operation makes for convenience and economy.

Effect of Split Treatment

The plant is located on the side of a hill approximately 10 feet below the highest water of a water power storage reservoir on the Otter Tail River. The water travels by gravity from this reservoir to a point midway between the two Precipitators. Suitable piping and valves are provided at this raw-water entrance so that the water may pass either in series through the two Precipitators and recarbonation chamber, or in parallel through the Precipitators and

(Continued on page 74)

At Grand Haven, Michigan.

Bigger Diesel and Lower Electric Rates

By J. Bryan Sims
Superintendent, Board of Public Works,
Grand Haven, Mich.

INSTALLATION in 1937 of a 2,250-hp Nordberg diesel engine unit in the Grand Haven municipal plant improved the operating characteristics of the plant. There were already three De La Vergne 1,140-hp diesels—two installed in 1931 and one in 1934—which have an excellent record.

In 1938, the first full year of operation of the new unit, the oldest units operated for 2,248 and 1,412 hours respectively and the third unit for 2,463 hours, while the big fellow was worked 6,497 hours. Because of the favorable load factor, the unit produced 12.43 kwh per gallon of fuel oil. The other three ran 11.03, 11.32 and 10.66 kwh per gallon respectively.

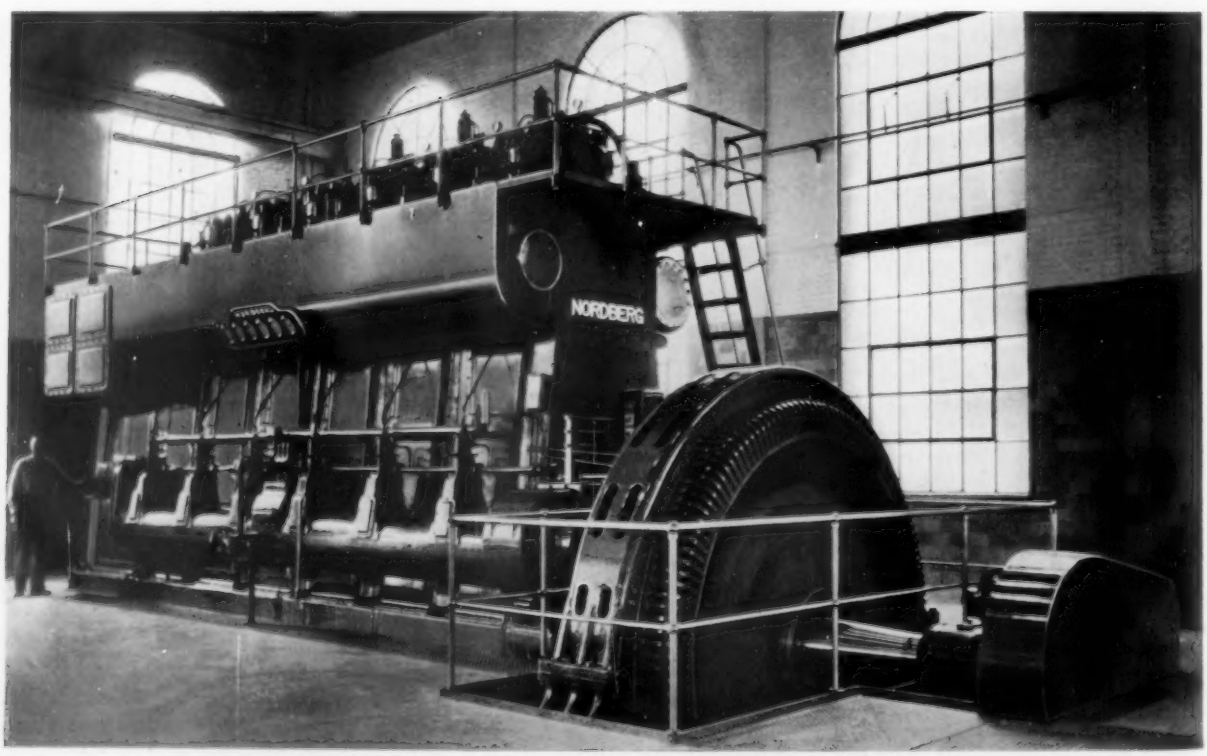
Fuel oil and attendance or labor are the largest factors in operating cost. In the Grand Haven plant they amount respectively to 48 and 37.7 per cent, or a total of 83.7 per cent of the operating cost for 1938.

As the unit produced 5,615,000 or 60 per cent of the plant's production of 8,557,400 kwh in 1938, it is seen that as much advantage as possible was taken of this new available capacity. The better load distribution and a substantial reduction in fuel oil price, largely due to bulk buying and the use of a heavier oil, brought the total operating cost to 7.87 mills per kwh, compared with 8.21, 8.65, 8.27 and 8.76 in the preceding four years. In 1939 the total plant production reached 10,332,200 kwh, up 19 per cent.

In 1898 the city voted $10,000 in bonds to be paid from earnings for the construction of a municipal plant, which was built and equipped with a Russell Corliss engine unit. In 1911 the plant was appraised at $25,244, and in 1915 the Corliss was replaced by a 500-kw turbine. In 1917 a 1,000-kw turbine and a boiler were installed.

In 1924-25 a 1,500-kw turbine, a boiler and a new boiler room were provided at a cost of $110,356. In 1927, a boiler, a stoker and a feed pump, a zeolite water system and a complete coal-conveying system were installed for $54,589.

In 1930 an offer of $1,200,000 by



This 2,250-hp diesel unit and three 1,140-hp units generate economical city-owned electric energy at Grand Haven, Mich.

a private company was rejected at election, and two diesel engines and a 100,000-gallon fuel tank were ordered at a cost of $217,000. These engines were installed in a new building adjoining the steam plant. In 1934, the third diesel was installed in a remodeled building, the complete operation costing $82,000.

The present modern diesel unit was installed in 1937 and the plant was enlarged—$200,000. In 1938 one 100,000-gallon steel underground fuel tank was ordered, to furnish adequate reserve and attain economies in purchasing fuel. Four new underground feeders were installed in 4-inch ducts running out from the auxiliary steam plant. An underground distribution system was provided to serve a parking space for 300 trailers at the nearby state parks. Another diesel unit will soon go in.

Street Lighting

The street-lighting system consists of General Electric luminaires on King Ferronite standards, in the business section, five standards on each side of a block. All lights burn until midnight with night lights burning at opposite corners and one in the middle of the block. The lamps are 6.6-ampere, 4,000-lumen and 20-ampere, 6,000-lumen. Five new standards were installed last summer.

On the residential streets, the Westinghouse or G.E. luminaires containing 2,500-lumen lamps are center-suspended, and 30 bracket-type or suspended luminaires were installed last summer.

Rates Reduced June 1, 1939

Present residential rates are 90 cents for 20 kwh, compared with $1.00 in 1938; $1.60 for 40 kwh, against $1.87; for 80 kwh, $2.75 against $3.15; for 100 kwh, $3.50 against $3.65; for 400 kwh, $8.15 against $9.70. This is a range of 5 to 1.5 cents per kwh.

The commercial rates are 5 cents per kwh for the first 30 hours' use of active load per month; 3.4 cents for next 100 hours' use, and 2 cents for all additional use. The active load is 60 per cent of the connected load, with certain exceptions. There is an optional rate of 5.1 cents for the first 100 kwh and 3.8 cents thereafter.

Optional power rates are 2.8 cents per kwh for the first 60 hours' use of active load, which is 70 per cent of the total horsepower connected; 2.4 cents for next 60 hours; 2 cents for next 60 hours, and 1.5 cents for all over 180 hours use. The general power rates are for 3 to 10 kw active demand, 2.1 to 1.3 cents per kwh; for 10 to 50 kw, 2 to 1 cent; for 50 kw up, 2 to 0.9.

The active load in per cent of connected horsepower is taken as 70 per cent of the first 10 hp connected, 60 per cent of next 10 hp, 52 per cent of next 30, 45 per cent of next 50, and 37½ per cent of all over 100 hp connected. For furnaces and other equipment rated in kilowatts, the active load is 75 per cent of the first 20 kw connected, 60 per cent of next 30, and 50 per cent of all over 50 hp connected. In no case may the active load be less than the full rated capacity of the largest machine.

Any customer whose active load is 30 kw or more may choose the "demand meter" method of determining the active load. The maximum demand is the average kw indicated or recorded in the 15-minute interval in which the consumption of electricity is greater than any other 15-minute interval in the month, as long as this demand is not less than the greatest demand during the preceding three months.

Rates Charged the City

The rates for municipal pumping are (from 6 A.M. to 6 P.M.) 2 cents per kwh for the first 15,000 kwh used per month; 1.8 cents for more than 15,000 kwh. From 6 P.M. to 6 A.M., the rates are 1.8 cents and 1.5 cents. Prompt payment of bills for energy for pumping and other municipal uses is rewarded by a 15 per cent discount. Street-lighting rates are as follows:

Candlepower	Hours Per Year	Annual Charge Per Unit*
250	1,800	$21.50
250	4,000	37.25
400	1,850	29.50
400	4,000	44.25
600	1,600	36.50
600	4,000	57.50

* These rates less 15 per cent.

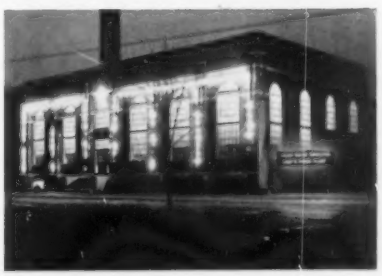
Current for street lights for Oval and Highland Parks and for traffic lights is metered at 4.5 cents per kwh less 15 per cent.

Electric, water and sewer-rental bills for 7,500 customers are made out by a Burroughs public utilities accounting machine. This has been the practice at Grand Haven for nine years.

During the last three fiscal years ending September 30, the total revenues and the grand total *expenses including operation, depreciation, interest, voluntary rent to city, and voluntary city and school taxes amounting to* $7,000 *to* $9,000 *per year at present*, have been as follows:

Total	1939	1938	1937
Revenues	$246,375	$229,985	$209,889
Expenses	171,748	175,470	169,804
Surplus	$ 74,627	$ 54,515	$ 40,085

The rate reduction of June 1, 1939, was celebrated by returning $18,000 to the customers in the form of a free month's bill.



DIESEL ELECTRIC PLANT AT GRAND HAVEN, MICH.

Top, general location, with tops of subsurface fuel-oil tanks shown in foreground; middle, night appearance of the power house; bottom, a Chevrolet and a GMC belonging to the Public Works Department

Metering and Accounting

Careful Checking of Water Bought and Water Sold, and Cooperation in Consumers' Problems, Helpful

By MARSHALL S. DUTTON
Superintendent,
Oak Park, Ill., Water Department

A GENERAL review of conditions in the Water Department of Oak Park, Ill., revealed that in the matter of accounts, although accurately kept, no degree of control was exercised. With close to 12,000 customer accounts, serving a population of 70,000 people, no balance sheets were available, daily billings could not be reconciled at the close of the day, and clerical errors were inevitable. In view of the fact that water is purchased from the city of Chicago on a metered basis, and the pumpage also metered at the Oak Park pumping station, an accurate record was available to determine losses in the distribution system and losses through underregistration of meters. Even under these conditions it was known that in the collection of accounts and the percentage of waste water, Oak Park was still far ahead of many communities; but with study and supervision, conditions have been materially improved each year.

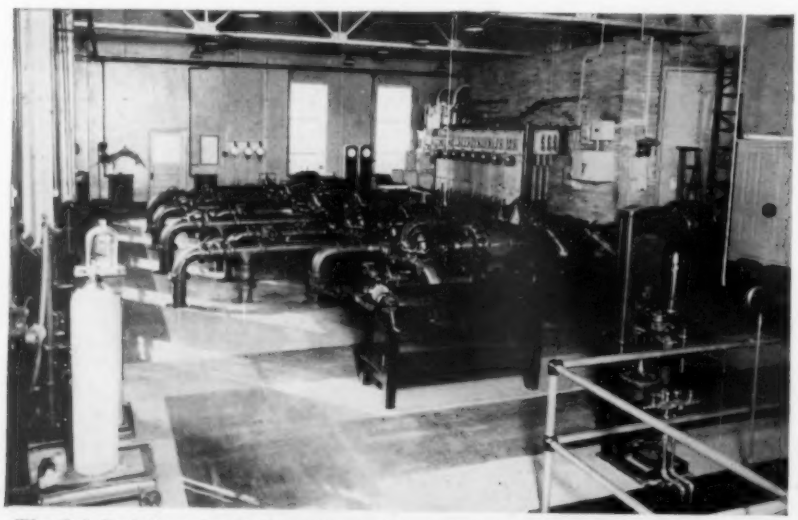
On December 31, 1939, there were 11,852 customer accounts, of which 11,350 are billed quarterly and the rest monthly. The ledger sheets are loose-leaf in trays, and the billing operation is all done by Burroughs billing machine, giving an original ledger sheet and original bill and stub, together with a duplicate of the bill on the journal sheet. The total accounts are divided into 23 controls of about 500 accounts each, separated according to streets, and each control must be in balance at all times. Obviously, the master control must also balance the total of the individual controls and at the same time must show the total amount of unpaid items. At the close of each day's billing, the total amount of water billed, in 1,000 gallons, must equal, when the rates are applied, the total gross billing as shown on the journal sheet. Totals are also obtained from the machine operation of discounts, net billings, arrears and total due.

Thirty days after billing, delinquent notices are mailed, and if still unpaid after seven days, the bills are turned over to the Water Department collector with orders to obtain payment or discontinue the service. Of course, it is not all as simple as this, and many accounts are collected on a partial payment plan agreeable to the customer; but by diligent effort, out of a total annual billing averaging $420,000, accounts written off December 31, 1938, amounted to $1,635.67 and on December 31, 1939, amounted to $1,101.88, with a total balance unpaid, including current bills on December 31, 1939, of $34,334.05.

WATER CONSUMPTION
1939

	Gallons	Percentage of Total	
River Forest	8,642,000	0.41	
Industrial (monthly)	54,392,000	2.61	
Quarterly accounts	1,077,649,000	51.76	
Monthly accounts	670,693,000	32.21	
Drinking fountains	624,000	0.03	
Pumping-station chlorinators	1,274,000	0.06	
Testing meters in shop	224,000	0.01	
Sub-total	1,813,498,000		87.09
*Playground pools	8,400,000	0.40	
*Playground flooding for skating	652,800	0.03	
*Parks flooding for skating	1,653,600	0.08	
*Vacant lots flooding for skating	747,200	0.04	
*Cleaning reservoir	960,000	0.05	
*Testing fire hydrants	183,000	0.01	
Losses and unaccounted-for-water	256,037,706	12.30	
Total purchased from city of Chicago	2,082,132,306		12.91
			100.00

* Estimated quantities—not metered.



The Oak Park Pumping Station, Where Chicago Water Is Received "Sight Unseen" and Pumped into the Oak Park Distribution System

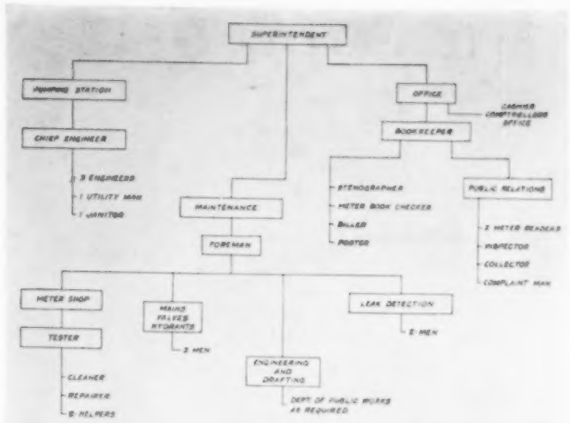
Checking Water Consumption

The question of how much water we are buying and how much we are paying for is much more serious, and the methods to be used in the reduction of losses are not so obvious. First, it is well known that there are losses in the distribution system, and there is a continual loss due to under-registration of meters. The table on page 58 gives an accurate accounting of all the water purchased during the year 1939.

Calling attention to the "Losses and unaccounted-for-water" amounting to 12.30 per cent, which in itself is gratifyingly low, it is to be noted also that, even should the conservative estimates of water used and not metered be added to the percentage of losses, the figure is still comparatively low.

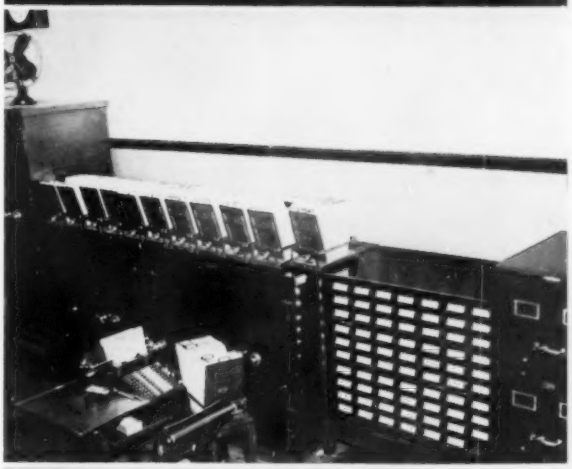
Considering, first, underground losses, a complete Pitometer survey was made in 1936, and all leaks that were revealed by that survey were repaired. Since such surveys are at best only a representation of conditions during the period of time the survey is in progress, complete leak-detecting and pipe-finding equipment has been purchased. This equipment is in use daily by the Department, and a fairly satisfactory survey of the system is made twice a year. Again, this job is not as easy as would appear, nor is it completely accurate, but it does keep existing leaks at a minimum. To facilitate this work, a complete and revised record has been made of all service connections and buffalo boxes. By far, the vast majority of leaks are found to be on the services, very few being found on the mains, while those at valves and hydrants are of a minor nature. To insure proper operation, all valves and hydrants are tested and repaired at least once during the year as a separate and distinct part of the routine work of maintenance.

(To be concluded in the July issue)

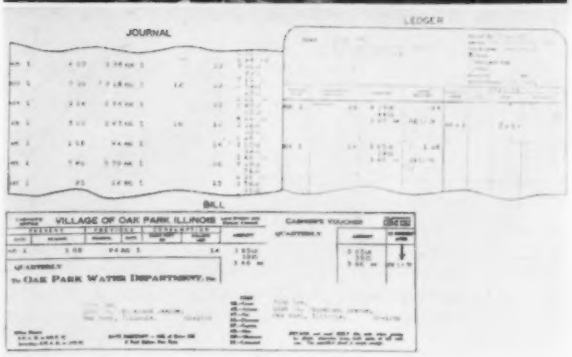


Organization Chart of the Oak Park, Ill., Water Department

The Billing Machine Used for Preparing Meter Bills



The Compact Customer Ledger Files



Samples of a Ledger Sheet, a Bill and a Journal Sheet

To Over-Modest Municipal Officials

Why hide your light under a bushel? If your municipality has a recent "forward step" to its credit that has not already been reported in THE AMERICAN CITY, why not submit an item on this subject for possible publication? Please address your material to:

Editorial Department,
The American City,
470 Fourth Avenue, New York

Equipping the Fire Department on a Continuing Plan

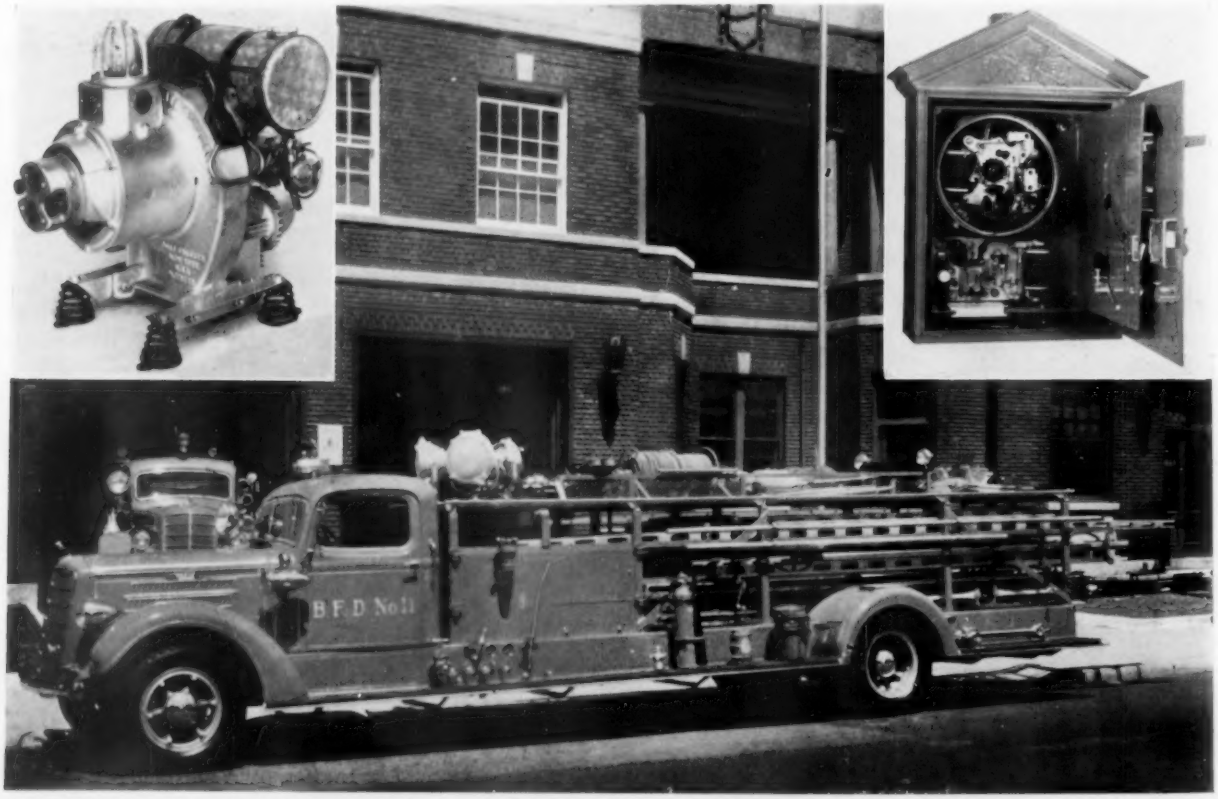
THE Bridgeport, Conn., Fire Department buys its chief's cars and service trucks out of savings. This is the idea of G. Wellington, President of the Board of Fire Commissioners. In private industry Mr. Wellington, of the Singer Manufacturing Co., is manager of a department of 400 machinists and machine operators. He knows men and he knows machines, and he buys fire apparatus very much on the principle on which he buys machine tools.

"If we put cars and trucks in the budget," he says, "we should be sure to buy them each year, but there would not be the same incentive to save." Each month the clerk of the Department furnishes him a statement of the status of Fire Department appropriations, showing

	Apparatus	Equipment	Hose	Salaries
1930-31	$13,000	$1,253	$5,000	$646,186
1931-32	0	900	4,795	669,015
1932-33	0	750	3,000	659,495
1933-34	12,500	750	2,793	608,361
1934-35	10,000	500	3,000	576,570
1935-36	13,000	750	3,000	564,426
1936-37	17,000	1,200	3,000	549,860
1937-38	17,800	500	3,000	550,710
1938-39	26,538	500	3,000	546,380
1939-40	9,800	500	3,200	542,360

the balances free and clear of all purchases. When it becomes evident that there will be some surpluses at the close of the fiscal year, these are used to pay for an assistant chief's car, or a line truck, a shop truck, a hydrant truck, or a supply truck. This is typical of the management of the Department during the last six years—not parsimonious but businesslike.

A good fire department must have trained, intelligent men, modern apparatus and equipment, and not cost too much. Bridgeport is taking advantage of its civil service law which insists that the top man, not one of the top three men, be given the job. There used to be three grades of firemen, starting respectively at $2,100, $2,200, and $2,300. Men could be appointed to any of these grades. Under the merit system, the starting salary is $1,560, and $2,300 is reached after five years. This substantial decrease in costs is of course phenomenal, and already there is agitation for the appointment of 36 new men to cost $56,160 the first year, then $62,640, $69,120, $75,600, and $82,800 the fifth year. The purpose is to provide a six-day week which would require two additional men for each 12 men in a fire company.



This Bridgeport city service ladder truck is the latest of 14 Mack fire trucks added since 1934. Besides a full assortment of ladders, it carries a 150-gallon booster tank and a Homelite electric generator (upper left) for fighting night fires. Half the alarms are transmitted by Gamewell boxes (upper right)

This addition to the force is likely to be ratified and, while it is said that the city cannot afford the three-platoon system, this only means, as elsewhere, that the taxpayers have not as yet been prepared for accepting it.

By rigorously retiring the men of long service who have become incapacitated, and replacing 77 of them with men who pass the examinations, which are not prepared or corrected in Bridgeport, the annual salary expense has been reduced by more than $66,000, while the number of men has increased from 233 in 1934-35 to 241 today.

Both Fire Chief Thomas F. Burns and President Wellington believe that good men cannot do good work with poor tools. Provide improved apparatus, and more intelligent men will be attracted to the service, and the spirit better.

The first thing the new President of the Board of Fire Commissioners did was to make a survey to find out what he had and what he did not have. Then, in 1935, he made a five-year plan, which has been extended to 1942, with average annual costs no greater than in former years.

More apparatus is being bought than formerly, because needs are foreseen and arranged for in advance. Apparatus is purchased every year in accordance with a retirement plan that is even stiffer than that applied to the men. Fifteen-year-old apparatus is definitely out. Since 1934 the following apparatus has been purchased:

8 600-gallon triple combination pumping engines
3 hose wagons
2 75-foot aerials

If all cities purchased proportionately at the above moderate needed rate of expenditure, the annual purchases of fire apparatus would total $12,000,000.

In addition, in the same four years, there were purchased out of savings a sedan for the Chief, a coupé for an Assistant Chief, a Ford and two Chevrolet trucks.

In 1934, 75 per cent of the apparatus was old type; by 1938 this percentage had dropped to 25 per cent old type, and 75 per cent was modern apparatus. All the new apparatus is Mack. In addition to the eight new Mack pumping engines, four new hose wagons and two aerials, the Department owns a 1,000-gallon Mack pumper nine years old, five 750-gallon American-LaFrance pumpers 11 to 13 years old and a 1,000-gallon pumper 11 years old, and another aerial truck.

It is claimed that the Department is now one of the most efficient in New England. If this is the case, it came about by surveying conditions in 1934 and then working out a detailed plan for modernizing the equipment in each of the 11 fire stations. This plan for a uniform annual increment of modernization was sold to the Board of Apportionment. Then it could work. The plan to 1942, and how it has worked out to date, are given below:

Plan for 1935.—Purchase for No. 6 engine house two 600-gallon pumping engines equipped with extra booster pump and 100-gallon water tank, to replace an 18-year-old pumper and an 18-year-old hose wagon. Two pumping engines in place of one increases the efficiency of this station. Repaint the 75-foot 10-year-old aerial and add three floodlights, a Homelite generator, and a two-way Eastman Deluge gun. Buy the assistant chief located here a coupé in place of his 10-year-old car.

Transfer to No. 5 engine house a 600-gallon pumper and a 1,000-gallon pumper, making this also a two-pumper station.

Install at No. 9 engine house a new 600-gallon pumper to replace one transferred to No. 11.

What was done.—The complete plan was carried out.

Plan for 1936.—Purchase hose wagon for No. 1 engine house; transfer 18-year-old wagon to No. 4. This station has a 1,000-gallon pumper.

Purchase hose wagon for No. 2 in place of 18-year-old hose wagon.

What was done.—The complete plan was carried out.

Plan for 1937.—No. 3 station has a 75-foot aerial, a hose wagon 18 years old, and a 750-gallon pumper 11 years old. Replace the aerial with a new 75-foot aerial ladder equipped with floodlights and Deluge gun, and buy a new 600-gallon engine.

What was done.—The ladder truck was rebuilt and the new pumper was added to make this a two-pumper station, so that there are now three two-pumper stations across the city.

Plan for 1938.—For No. 7 station purchase new hose wagon in place of 22-year-old hose wagon. There is a 10-year-old 750-gallon pumping engine here.

What was done.—The hose wagon was purchased. The 75-foot Mack aerial of No. 6 station was so damaged at the Barnum School fire that it was rebuilt with an additional appropriation. A new 600-gallon pumping engine was bought for No. 11 station to replace an 18-year-old pumper which was converted into a foam pumper for oil fires and sent to No. 1 station.

Plan for 1939.—At No. 11 station replace 19-year-old pumping engine with a 600-gallon pumper. Replace 22-year-old city service truck.

What was done.—The plan was carried out. New city service truck purchased for No. 11.

Plan for 1940.—At No. 4 station is a 750-gallon pumper 13 years old and a hose wagon 23 years old. Replace hose wagon.

At No. 10 station is the same equipment as above. Replace hose wagon with a city service ladder truck.

Plan for 1941.—At No. 12 station replace city service ladder truck 24 years old, using the old equipment at the drill tower.

Hose

Equipment other than apparatus is also purchased on a predetermined basis of requirement, to prevent feasts and famines. During the last five years 26,900 feet of 2½-inch hose has been purchased. It is all multiple cable waxed and gum-treated, made by the Fabric Hose Co. "The men like it," says Chief Burns, "because it does not freeze up, and we carry a great deal of 1½-inch hose of this make also."

Type of Hose Used in Bridgeport

Voice Alarm

One of the first systems for transmitting alarms from headquarters by voice or loudspeaker to all the fire stations was worked out and installed by Chief Burns. All the men in all the stations hear all the alarms, which are also transmitted by the Gamewell fire alarm. About half the alarms are box, which represents a high degree of use, considering the fact that there are 30,000 telephones in the city, and 373 municipal fire-alarm boxes and 65 A.D.T. boxes. The underground system amounts to 32½ per cent of the total alarm system. In 1939, there was added 6,000 feet of 20-conductor Simplex cable, and this year 3,500 feet of 48-conductor cable will be added if the budget request is granted.

"Where's the Fire?"

A rotary visible file of the Victor Safe & Equipment Co., on the fire-alarm floor, lists all boxes by their

first digits—4, the 40's, the 400's. Then all the schools and institutions are listed by name, location and box number. Then, most important of all, every street is listed, and under each street all the cross streets are given, with the box numbers. In the event of a telephone alarm, if the house number cannot be ascertained, at least the nearest cross street can be elicited, and this is sufficient to show the location of the fire and the nearest box.

All Oil Plants Equipped with Foam Systems

Since February, 1939, all the oil plants in the city, and there are 14, have been equipped by law with the foam systems of the National Foam System, Inc., or American-LaFrance & Foamite Industries, Inc. The ordinance requires:

Capacity of Trucks in Gallons	Pounds of Foam Powder
20,000 to 50,000	1,500
50,000 to 100,000	3,000
100,000 to 200,000	4,000
150,000 to 200,000	5,000
200,000 to 300,000	6,000
300,000 to 400,000	8,000
400,000 to 1,000,000	10,000
Over 1,000,000	12,000

The requirement is for a flow of foam amounting to ¾-gallon per minute per square foot, and not less than 500 gallons of foam per minute. There is thus available in the city 62 tons of foam powder.

The Best Hobby

The fireman's job is very different from that of the workmen in a production line of industry. A fireman may be risking his life one day and be practically unoccupied at his trade in the next three or four days. This open time in the department, however, can be utilized by the Chief not in manufacturing home-built fire apparatus or pursuing hobbies, but in making the service quicker and surer. Examples at Bridgeport include the apparatus - replacement program covering years ahead, making the alarm more efficient, developing fire-prevention measures, getting as good men as possible, and making them expert in the use of modern equipment which is provided as a matter of course.

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New Pool in Coast Play Center

By FRANK C. STONEY
Recreational Superintendent,
South Pasadena, Calif.

The Pool in Orange Grove Recreation Center, South Pasadena, Calif.

A 50 x 100-foot elevated swimming pool, opened in the summer of 1939 by the city of South Pasadena in its new Orange Grove recreation center, presents another instance of a municipality providing not merely a tank of water for swimming, but a swimming mechanism which furnishes fun and health and the peace of mind which comes with safety and cleanliness.

The pool is elevated, and all piping is below floor level, with the equipment room under the deep end. Twenty-one water inlets at the bottom, instead of along the sides, distribute more evenly both the water circulation and the chlorine gas. The Chemical Equipment Co. supplied the complete equipment, including Chemco pressure filters, chlorinators, suction sweeper, rate-of-flow indicators, springboards, ladders, dives, underwater lights, and the inlet and outlet fittings.

Charges are 10 cents for patrons up to 12 years of age, 15 cents for 12 to 18 years, 25 cents thereafter.

The pool is the principal feature of the new center, opened in July, 1939, to an attendance ranging around 3,000 per week. There are two tennis courts, and facilities for basketball, baseball and shuffleboard; a game room for darts and table tennis; a room for cards and checkers; and two craft rooms.

J. C. Jacobs is Mayor of South Pasadena; B. A. Garlinghouse, City Manager, and the Recreation Commission consists of Dudley Bottorf, John W. Lytle, Mrs. Albert T. Case, Mrs. Frank E. Ford and Rev. Richard Morgan.

First Town in Canada's Northwest Territories

MUNICIPAL elections were recently held for the first time in Canada's remote Northwest Territories, at the first town in the region, the four-year old mining camp of Yellowknife on Great Slave Lake. A sign that the Far North is ever coming closer to civilization is the new five-man commission, with two members elected by the miners and merchants of the town, and three appointed by the Canadian Government. The three commissions elected by the town in the December elections were: J. McNiven, mining plant superintendent; George Carter, ground crew chief at another plant, and J. Gibbon, resident Magistrate of the Northwest Territories.

Four years ago, there was nothing but bush on the site where the town is now located. Then came the first prospectors by air, who found rich gold strikes on the shores of the Yellowknife River. Now Yellowknife, which has a population of about 1,000, has five general stores, two or three other stores, several mines, a movie house, a bank, two missions. Four transportation companies and three air companies have services into the town. During the summer, meat and other perishable supplies are shipped in by refrigerated scow from the prairie provinces.

JAMES MONTAGNES.

Relief Paving by Assessment

New Castle, Pa., Completes Four-Year Program with 60,000 Square Yards of Stone Base and Asphalt Top

By G. R. THROOP
City Engineer

A Street in New Castle, Pa., Before Paving

FACED with the huge task of maintaining approximately 55 miles of earth street out of a total of 120 miles, the city of New Castle, Pa., with a population of 48,600 in 1934, like many other cities prepared to take advantage of the Federal relief money under the various public works programs.

Maintenance of the earth streets was very difficult owing to the topography of New Castle. The business district is in a valley between the Shenango River and Neshannock Creek, while the residential district lies on the hills surrounding. Street grades as high as 18 to 20 per cent are common. The result is that after each rain numerous streets in and near the business section are filled from curb to curb with débris washed in from side streets and very costly to remove.

Paving by Assessment

As the entire cost of paving, except for street intersections, must be borne by the property owners through assessments, it was necessary to investigate types of paving that would be low enough in cost to make it attractive for property owners on a street to petition for the work to be done.

After investigation, it was decided to use some form of bituminous concrete wearing surface. The controlling factor governing the selection of this type was that New Castle is fortunate in being located near numerous sandstone deposits which could be readily utilized for base, and also that it would require a large amount of unskilled labor to quarry and break the stone.

The new street cross-section has a 10-inch broken sandstone base, a two-course, plant-mixed, bituminous concrete binder course and wearing surface, and concrete curbs. With this section adopted, an estimate was prepared based on a 36-foot pavement. A cost of $1.65 per front foot of property was publicized with the statement that this amount would not be exceeded. This would permit property owners to have their streets improved for only the cost of material assessed to them. Arrangement for payment was made by allowing the amount to be paid at face value for a period of thirty days after notification; thereafter, quarterly payments with interest at 6 per cent could be made for a period of two years, at the end of which the balance, if any, would be filed against the property as a municipal lien.

The proposition was received enthusiastically by property owners. Announcement of the probable cost was made late in December, 1935, and by March 1, 1936, petitions were presented from 25 different streets. One of the requirements, under existing city ordinance, was that all petitions for paving must have signatures of a majority of owners in both number and interest in front feet. These petitions as presented averaged 75 per cent in both figures.

As soon as possible after receipt of the petition, detailed surveys were made and drawings were prepared. When the first ten streets had been drawn up and estimates of material requirements made, they were submitted to what at that time was RWD and later WPA.

The project was approved in May, 1935, and actual construction was started June 9, 1935.

The Sandstone Base Ready for Checking with the Crown Board

The Base Fully Choked and Rolled, Ready for the Amiesite Binder and Top

Hand and Machine Work

To conform with Government requirements for percentage of sponsor's contribution and man-month cost, the entire project operation was set up to use as much unskilled labor as possible. This fact was favorable to the city in that equipment furnished by the WPA was based on a percentage of the total labor cost. This made enough money available for trucks —the largest equipment item.

As stated, it was desired to use all the unskilled labor possible, and the roadway excavation was made by hand for the first few streets. The excavation averaged 18 inches in depth. It soon became apparent that the cost of trucking was becoming excessive owing to the length of time required to load by hand, so the city rented a skimmer gas shovel, and the cost was added to the material cost to be paid by the property owner.

After roadway excavation is completed, ditches for under-curb drains are dug by hand, filled with broken stone and well tamped. Steel forms for the concrete curbs are then set to line and grade. Concrete for curbs is dry batched at a central point, transported by truck to the job, where it is delivered to a two-bag city-owned mixer, after which it is distributed to the curb forms by wheelbarrows. After the forms are filled and screeded, they are covered with wet burlap. The forms are stripped next morning and reset for the day's run, which is usually 600 lineal feet. The curbs are covered with burlap and kept wet for five days and after having become thoroughly cured are rubbed with Carborundum blocks and water.

Stone Base

Upon completion of the curbs, the sandstone for the base is delivered in one-man size. This is then broken by 2-pound hammers and brought roughly to grade. Following this crew, a second crew, using a crown board which rides on the curb, levels and naps stone exactly to crown and grade. When this operation is completed, a preliminary pass is made with a 2-ton, 3-wheel roller. The stone base is then choked with bank-run sand, which is swept into the stone with stable brooms. Meanwhile rolling continues until all crevices are completely filled. The entire surface is then thoroughly broomed clean of all loose sand and given a final longitudinal check with a 10-foot straightedge.

Binder and Surface Courses

Upon this prepared base, 2 x ¼-inch rods 12 feet long are placed longitudinally at about 2-foot centers transversely for screed strips for the bituminous binder course. The material is dumped from the trucks onto iron sheets and then shoveled by hand onto the guide strips. All leveling is done by hand rakers; and when about 200 feet has been completed, rolling is begun with a 10-ton, 3-wheel roller.

When the binder bituminous concrete course has been completed 1-inch bars are set in place and the wearing course of bituminous material is spread. After this operation, the surface is thoroughly rolled and thrown open to traffic.

Materials for use in the work are estimated for about a year's requirements. Specifications are prepared and bids are received on a competitive basis for greater or less quantities to be delivered as required. An accurate check is kept on the amounts of various materials used on a street, and upon completion the cost is assessed by the front-foot rule against the abutting property after the cost of street and alley intersections has been deducted for payment by the city.

The bituminous paving material has been furnished under the trade name Amiesite. The binder course has an aggregate of crushed limestone graded from ¼- to 1½ inches, while the wearing course limestone aggregate is graded from ⅛-inch to ⅜-inch.

Year-Round Work

Although the actual construction season is limited to the period from about April 15 to November 1, the project is operated the entire year. Owing to the huge amount of sandstone necessary for base, quarries are operated during the winter with sufficient men to insure an adequate supply of stone for the following construction season. These quarries are on property under lease by the city, which pays 5 cents

(Concluded on page 74)

A Completed Section of Paving with Curbs and Curb Inlet

Street Cleaning

The Three Seasons in Bangor, Maine, Described with Special Attention to Machines and Removal of Leaves

By P. H. GLOVER
City Engineer

LIKE Gaul in the days of Caesar, street cleaning in Bangor, Maine, may be divided into three parts: the spring clean-up after a winter of snow-plowing and sanding; the regular daily cleaning; and in the fall the removal of leaves.

Removing Winter's Sand

Each winter sees more sand and cinders used on the streets and sidewalks. A few years ago 1,000 cubic yards of grit was all we used in a bad winter. Last winter we spread over 3,500 cubic yards on streets, roads and sidewalks. Some of this washes away in the sewers, but the greater part either finds its way into the catch-basins or remains on streets and sidewalks to be swept up, loaded into trucks and hauled away. It is worse than a woman's spring house-cleaning, for there is no attic or stair closet in which the rubbish can be hidden for a future generation to resurrect and sell for antiques.

The small wheeled tractors used in winter for sidewalk plowing and sanding are now fitted with revolving brooms and used to sweep sidewalks and streets. On dry days a small distributor goes ahead and wets down the surface. The first year, we started the brooms one damp morning without the sprinkler and the sun came out bright. The wind rose and the cloud of dust we raised was nothing to the cloud of complaints. If we had a single friend in town he was bashfully silent. Apparently, everyone in the city had started to paint his house that morning.

The spring clean-up usually takes, roughly, six weeks, depending on the amount of sand used the winter before and the size of the crew available. The average crew consists of about sixteen men with two small trucks, two rotary brooms and the distributor.

The catch-basins are cleaned with an Eductor. This does the work of about three hand crews and does it without noise, smell or other nuisance.

Regular Street Cleaning

The regular street cleaning is done both by hand and by machine. Two reliable, experienced men do the hand sweeping in the downtown district during the day. For a day or two after the Fourth of July, or after a circus or a Fair, extra men are put on this job. The night cleaning of the business district and the main artery is done by a large Elgin sweeper and a small Kinney flusher. Some streets are cleaned every night, others every other night, and some at less frequent intervals. Weather and other conditions govern the choice of apparatus used.

Practically all the streets in Bangor are either hard-paved or black-top, so that once the streets have been cleaned they do not become dusty again during the summer. After tarring of the black-top streets is completed, usually early in July, if an excess of sand cover has been used on any street, the surplus is swept up from the gutters and hauled away. Only a comparatively small proportion of the streets in town require this. Some of the excess sand also finds its way into the catch-basins and is removed by the Eductor.

Dead Limbs and Leaves

Almost all the residential streets in Bangor are lined with trees, elms and maples predominating. They are one of the chief beauties of the city, but are a constant source of trouble to the Public Works Department.

The three seasons for trees are—dead limbs, live bugs, and falling leaves. The occasional falling limb is picked up by the emergency trucks on their trips through town, but the leaves require a regular campaign. The concrete paved streets are usually cleaned of leaves by the Elgin working during the day. On a majority of the other streets, the crown is too great or too irregular. A slight excess crown throws the entire load on one side of the belt and causes it to jam and rip.

These streets are swept by hand and the leaves loaded into home-made trailers drawn by the small wheeled tractors. The trailers are rubber-tired, about 18 feet long, and are built as low as possible for ease in loading. By using three trailers to two tractors, there is always an empty trailer waiting at the dump for the tractor to pick up without loss of time. A few years ago we loaded the leaves into small trucks, but this was found to be very unsatisfactory and expensive. The use of the large trailers cut both time and cost.

The piece of equipment which we need the most now is a small street sweeper, narrow enough to travel on a 5-foot sidewalk. Not only would this remove the winter's accumulation of sand from the sidewalks, but it could be used in the gutters of streets having too great a crown for the large sweeper.

New Courses in Planning

This year, for the first time, a course in Regional Planning is being offered by the Harvard University Summer School. Running from July 1 to August 9, it will cover: General Theory of Regional Planning; The Method of Regional Planning; Application of the Method of Regional Planning to Specific Problems; The Practice of Regional Planning as Revealed in the Work of Selected Planning Agencies. Further information may be obtained from Oscar Sutermeister, Instructor in Fine Arts, Straus Hall D. 21, Cambridge, Mass.

A new degree—Master of Science in Planning and Housing—is to be awarded by the School of Architecture at Columbia University beginning with the school year 1940-41. With certain exceptions, the course is of two years' duration, and is primarily concerned with the physical improvement of environment and the development of technical ability to foster such improvement, with supplementary courses in economics, public administration and sociology. For further details, write to Carl Feiss, Assistant Professor of Architecture, School of Architecture, Columbia University, New York.

Refuse Handling Diversified in Cambridge, Massachusetts

Collection of Garbage and Other Combustible Refuse by Well-Trained Crews on Regular Schedules

The Cambridge Municipal Garage

Emptying Garbage into Rear Bucket

Dumping Rear Loading Bucket

FOR fully fifty years the many old clay pits in Cambridge which have furnished the raw material for hundreds of thousands of building brick for use in the Boston metropolitan area, have also served as dumps for the ashes and rubbish of the city. Vast areas of water-filled pits have thus been refilled and brought back to useful service as parks or industrial building sections. The nearby farming sections have furnished ready markets for the garbage of the residential and college city, so that problem has been quite easily solved.

The dumping of rubbish ceased early in December, 1939, when the new refuse incinerator at Raymond Street, near the center of the city, was placed in operation. This incinerator consists of three furnaces each capable of burning 70 tons of rubbish with a water content of from 5 to 50 per cent in 24 hours. Each furnace has three charging holes. The new incinerator was built as PWA Project 1443F by M. Slotnick, general contractor, of Boston, from designs of Cleverdon, Varney & Pipe, engineers, of Boston, with whom were associated J. Borge of New York City as mechanical engineer and Charles R. Greco, Inc., architects.

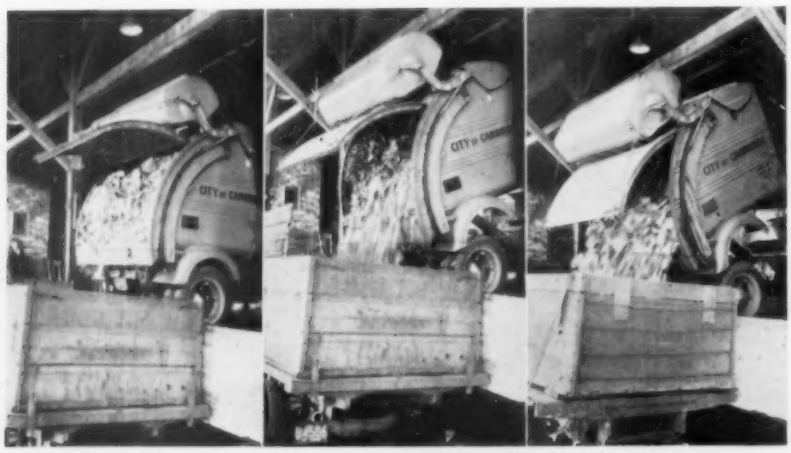
Present Disposal of Rubbish

The entire area of the city is divided into six districts for rubbish collection. The fleet of 22 rubbish and paper trucks start Monday morning in one district and clean up one district a day, removing all rubbish, cans, paper and ashes. The rubbish trucks vary from 3 to 6 cubic yards capacity, and the paper trucks from 4 to 5 cubic yards. The trucks have either metal or wood bodies extending the full length and width of the trucks, and heights from 40 to 48 inches, with an opening at the midpoint of the side to permit easy emptying of containers.

The rubbish is hauled to a dump in the western section of the city, where at present a fill is being made on railroad property over an old marsh.

Garbage Collection

The garbage of Cambridge is collected by a fleet of twelve 6-yard Garbage Getters painted a dull red and mounted on Studebaker trucks which are painted a brilliant red. Collection of garbage is made from back-yards as distinct from the curb collection of rubbish. Three or four men, including the driver of the truck, compose a collection unit. There are twelve routes for garbage collection, each of which is covered twice a week. The trucks start out from the city garage about 7 in the morning, and when they finish the day's route they are through for the day. Daily collections are made at stores, hotels and hospitals, as well as at the dining



Three Shots at a Load of Garbage Being Dumped at the Transfer Station

rooms of the colleges in the city.

An interesting system is used to handle the large collection points, such as around Harvard Square and the college dining halls and hotels. The trucks handling these particular routes start out in the morning and collect from the district around Harvard Square and around Central Square or one of the college dining halls, and deliver to the New Street transfer depot, and then, after dinner, go out after residential garbage. Thus, one load is usually collected in the morning and a second one in the afternoon, completing the day.

The householders' garbage containers are not moved from the back of the house. The containers are emptied into the large wooden collecting bucket with bale which is carried by each collector from house to house. When the wooden pail is filled, it is emptied into the metal trough at the back of the Garbage Getter truck. When the metal trough is filled, the control lever is thrown and the load raised to the top of the truck, which opens just as the trough reaches the dumping point; and the material is emptied into the truck, the top gates closed immediately, and the trough returned to collecting position again. The continual dumping at the top compacts the load materially, as was noted at the transfer platform where several of these trucks were emptied.

The wooden collecting buckets are new butter or lard firkins, which are purchased in quantity by the city and equipped with wire hoops. The wire hoops are replaced with three metal bands by a man working at the transfer station part time on this particular work. The bands are of good quality metal and do not rust, so that they are used over again on new buckets when the old ones are destroyed. The firkins cost about 15 cents each, and 55 cents each complete with the iron hoops and the bent wooden handles. The handles alone cost 32 cents each, because they must be steamed and shaped and the metal connectors riveted to them.

Garbage Disposal

At the New Street transfer station the garbage is sold to a broker and hauled all the way by farmers for feeding to pigs. As a collection truck reaches the transfer platform, it lets down the collection trough, and then chains at either end are attached to the trough and the tailgate. When the trough is raised three hooks which hold the tailgate tight are released, the tailgate is raised, and then the load of garbage is dumped into the waiting truck below as the body is raised. As soon as a collection truck is emptied, it moves across the platform and is thoroughly hosed out with cold water under high pressure. Because of the welded body there is no opportunity for organic material or liquids to be retained in it, so that it leaves the transfer depot free of odors.

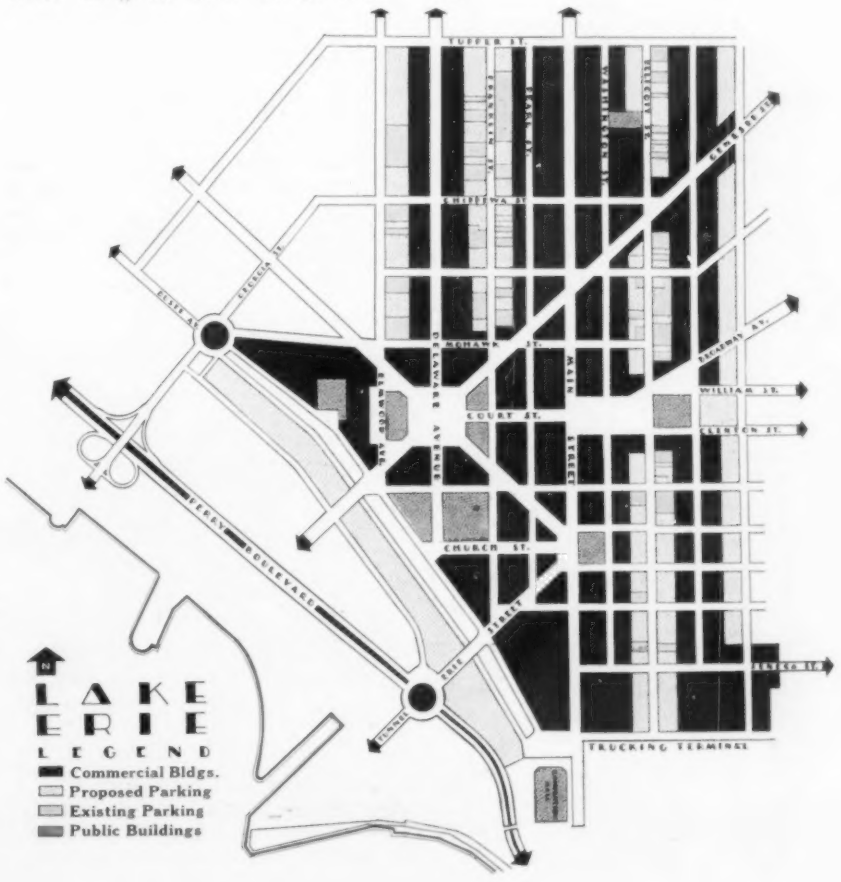
The collection and disposal of rubbish and garbage in Cambridge is under the direction of James F. Mahoney, Superintendent of Streets.

Planning for Parking in Buffalo

THE map below shows the suggested plan which the Buffalo City Planning Association proposes, to relieve congested traffic in the city's downtown business district, provide more space for parking, and retard the trend of shoppers to buy in stores in outlying districts.

Crosstown and through cars would be taken off the downtown streets by an efficient and speedy by-pass, consisting of Perry Boulevard and a tunnel connection with Fuhrmann Boulevard (not shown on the map). From this by-pass, railroad tracks and street crossings would be eliminated; a center grass strip would extend in the middle of the roadway; and a "continuous flow" access would exist at only the most important crosstown streets. A trucking route would also be provided to follow along the lower Terrace from Georgia Street under Genesee Street, Erie Street and Main Street to the trucking terminal location. The "continuous flow" exits from Perry Boulevard at Georgia Street and Erie Street would afford quick and easy access to the downtown and to ample parking lots proposed below the Terrace.

All along both sides of Franklin Street and Ellicott Street there are already many vacant lots used for parking, the building line becoming more and more punched with holes. The Commission suggests developing these streets into service streets provided with continuous strips of off-parking (half a block wide) on both sides. Traffic would flow into these service streets from a circumferential highway to be developed around the inner business district.



Allotment Gardens Reduce Relief Burdens

Ontario Municipalities May Take Over Vacant Land for Garden Purposes—Numerous Cities Start Community Undertakings

By H. Bronson Cowan

THE Vacant Land Cultivation Act, passed at a recent war-time session of the Ontario Legislature, has a double purpose. In the words of E. A. Horton, Director of Unemployment Relief, Parliament Buildings, Toronto:

> This is an ideal war statute in that it encourages the production of vegetables for home consumption. It is effective in the relief program, as all produce grown will be retained by relief recipients. It therefore will assist the recipients and the authorities in offsetting any increase in the price of foodstuffs that may accrue as the war progresses.

In such cities as Toronto, Ottawa, Windsor, London, and Hamilton, wide-scale plans have been prepared for procedure under the Vacant Land Cultivation Act as a community undertaking. The municipalities are receiving the cooperation of their local Chambers of Commerce and service organizations as well as of their local press. It follows closely a similar movement in England, where entire estates have been turned over to the cultivation of vegetables during the war emergency.

Inception of Movement

During the first World War a similar movement was retarded by the refusal of some owners of vacant land, conveniently located and suitable for the purpose, to allow it to be used for the growing of vegetables. This led to the enactment of the Vacant Land Cultivation Act, 1918. This act was never repealed but was amended by the legislation above mentioned.

The council of every municipality is entitled to pass a by-law, which may be extended from year to year, for granting permits to any person to enter upon, hold and use vacant land for the purpose of cultivation and the growing of such crops as may be prescribed by the by-law. Any person may apply for a permit. A fee, not to exceed $1.00, may be set by the council. No fee is charged relief recipients. Vacant land is any land that is not immediately required by the owner for building or manufacturing or other revenue-producing purposes.

If the council revokes a permit because it has been determined that the land is required by the owner for building, manufacturing or other revenue-producing purposes, it is required to pay compensation, not exceeding $50 in the case of any one permit.

Application to Relief Recipients

As far as relief recipients are concerned, it is intended that the Act shall offset any loss that may be occasioned to the purchasing power of relief recipients' vouchers, should food commodities increase in price to any marked extent. Provincial control is under the Provincial Unemployment Relief Branch, and local control in the hands of the local relief administrators for each municipality.

Tracts of land as close as possible to, or within, municipal limits, are divided into plots either 25 x 100 feet, or 40 x 100 feet, or any combination thereof, and each family is given a plot for cultivation. Large families may have one or two plots, according to the direction of the local administrator.

Each family on the active files of the local relief department is required to take a plot, or produce a medical certificate or certificates for inability to work. These certificates must be satisfactory to the local relief administrator. Any dependent may be requested to work on behalf of the family unit. At the end of the season, each person is required to clean up his own plot, and preferably secure the same plot for next year.

If any recipient or dependent obtains employment, he is to be permitted to continue on his plot until the end of the season only. He must signify his intention of continuing. If he neglects to care for or work his plot, it may be turned over to any recipient after one warning is given.

Any costs that are incurred by the local relief department are borne proportionally by federal, provincial and municipal contributions. The prevailing basis of sharing is on the same basis as the expenditures for food, fuel, clothing and shelter are shared for any month. Expenditures may be incurred for seeds, small garden tools, fertilizer, the first ploughing, or the breaking up of virgin soil, cost of watchmen and supervisors, cost of shanties for storing tools, or necessary minor expenditures. As far as possible, tools, fertilizer, shanties, seeds or any items are to be supplied or donated by the municipality, the recipients, or private donors.

All produce grown by relief recipients is retained by them for their own use, without its value being budgeted against the food allowance. Any evidence of waste or negligence in the handling of such produce is expected to be dealt with in a proper manner by the local authorities.

The Grand Old Man of Atlantic City Water Works

ON the 15th of this month, Lincoln Van Gilder, who has been with the Water Department of Atlantic City, N. J., as Engineer and Superintendent since January 1, 1906, will celebrate his eightieth birthday. Believing that membership in the American Water Works Association is an essential part of the life of any active water-works man, Van Gilder joined the Association almost as soon as he joined the Water Department of Atlantic City.

Lincoln Van Gilder

A native of New Jersey, having been born June 15, 1860, at Ocean View, Cape May County, Lincoln Van Gilder attended country school at Ocean View and worked on his father's farm and in his sawmill until he was 18. The next 13 years were spent in North Carolina and Georgia, with his older brothers, and later with a lumber company. He continued in various engineering enterprises in both the South and the North until May, 1896, when he joined the Bureau of Building Inspection in Philadelphia as inspector of elevators. During this time he took a special course in civil engineering at the University of Pennsylvania as of the Class of 1898.

In December, 1905, he resigned from his Philadelphia position and entered the service of Atlantic City as Engineer and Superintendent of the Water Department, where he has served continuously for over 34 years. He is well known and beloved in the water-works fraternity.

Sewage-Sludge Treatment—Centrifuge and Sub-Decanting

Demonstration Plant at Sewage Works in Elizabeth, N. J., Reports Interesting Results

A DEMONSTRATION plant has been in operation for over a year at the site of the Joint Meeting Sewage-Treatment Plant, Elizabeth, N. J., dewatering primary tank sludge and clarifying the centrifuge effluent by an "upside down" settling tank. The demonstration plant is operated by the American Centrifugal Corporation, of New York City, and has been used also experimentally to dewater sludge delivered by tank trucks from other sewage-treatment plants.

Dewatering by Centrifuge

The centrifugal dewatering machine weighs approximately 10 tons and is entirely encased, so that no sludge is visible at any time during the dewatering operation. It consists of three integral parts. There is a base plate which includes the housing for the basket, which is cast integral with it, the horizontal drive shaft, and the bearings in which the shaft is mounted. The second part is the head which carries the feed pipe, which also supports the cutter arms and cutter blades and the necessary shaft and levers, as well as the cutter motor for operating the cutter mechanism for the removal of the dewatered sludge. The third unit is the basket, which is of the imperforate type, 44 inches in diameter and 25 inches deep, made of chrome molybdenum steel to withstand the pressures produced at maximum loading and when rotating at 1,900 rpm.

Auxiliary equipment consists of a wet sludge storage tank, from which the sludge, without further treatment or admixture, is delivered by a small centrifugal sludge pump to a feeder tank, equipped with agitators and with an overflow, so that the speed of delivery to the centrifuge will always be from a constant head. The overflow line returns to a wet storage tank.

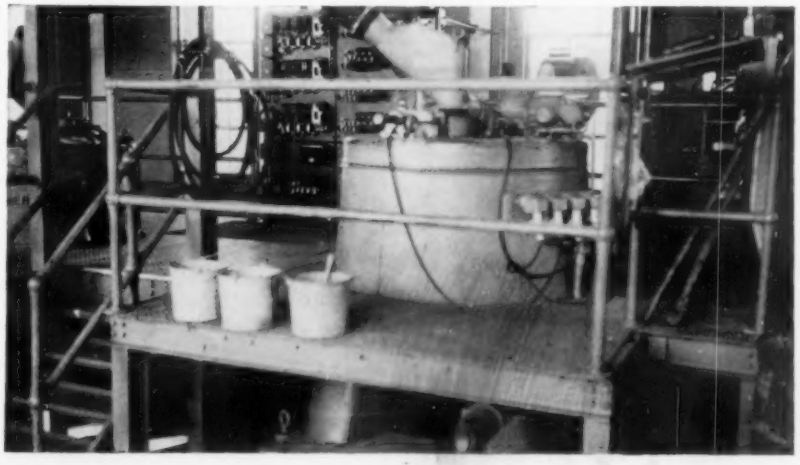
The raw primary sludge at this plant contains from 5 to 5.5 per cent solids, and is delivered to the centrifuge by a multiple bucket feed, automatically controlled when the centrifuge is started. The speed is gradually built up to the maximum of 1,900 rpm; and when the basket is filled to a predetermined thickness with dewatered sludge, an internal cam shuts off the feed and simultaneously throws the drive motor into its regenerative cycle. In this cycle the Ward-Leonard control is used for regeneration, so that the energy stored up in the rotating basket is used to drive a generator, which delivers electricity back into the line, thus aiding the joint plant in recovering electricity. The Public Service Corporation meter at the entrance to the plant has a ratchet so that this meter will not be turned backward; thus the electrical energy is consumed entirely within the plant. Furthermore, this method acts as an effective and productive brake on the centrifuge.

The 44-inch machine installed at Elizabeth has a single sludge knife for cutting off the dewatered cake. When the machine has been cleared of the cake, which drops onto a belt conveyor below, the machine resets itself and takes up another load. The cycle of operations at Elizabeth requires from 9 to 19 minutes to fill the basket with dewatered sludge, depending on the rate of feed and the per cent of water in the sludge. When the basket is unloading, its rate is reduced from 2,000 to 116 rpm.

The present machine is driven by a 60-hp dc motor, in combination with a Ward-Leonard control.

The belt conveyor which receives dewatered sludge is equipped with a Howe Weightograph scale, in which a light shows the total weight of the batch delivered.

When this centrifuge is operated with sludge containing unshredded screenings, a screen is inserted at the influent end of the machine to catch large rags and sticks. The dewatered sludge has a residual moisture of from 60 to 70 per cent as it is removed from the centrifuge basket.



Interior of the Demonstration Plant at Elizabeth, N. J., Showing the Sludge Centrifuge

The Upside-Down Clarifier

Because of the aeration of the centrifuge effluent as it is thrown out of the basket during the dewatering of the sludge, and as it contains a considerable amount of emulsified grease at the Elizabeth plant, a novel method of further clarifying this effluent, instead of returning it direct to the influent line of the plant, has been devised. A clarifier tank, 11 feet 2 inches long, 27 inches high and 48 inches wide, has been built in the basement, and to this tank is fed the centrifuge effluent at the bottom. The grease and much of the other organic matter in this liquor rises because of the grease and aeration. The liquid is allowed to set for 24 hours, and then the liquid remaining is sub-decanted from the bottom, and the sludge which has risen to the top is scraped off by hand. The sub-decanted liquor contains only 0.5 per cent solids, and the sludge at the top contains 10 to 11 per cent solids. The centrifuge liquor fed to this tank has about 5,700 B. O. D., while the effluent has been reduced to 2,700 B. O. D. and is delivered to the raw-sewage influent line.

The sludge from this clarification tank may be sold to soap manufacturers when it contains more than 40 per cent grease, or it can be sprayed into a furnace, as it will support its own combustion, or else delivered to a digester; or if low in grease, it may be used as a fertilizer.

Summary of Results

The reports of the American Centrifugal Corporation on the results obtained at this demonstration plant are as follows: The raw sludge fed to the centrifuge has 5.2 per cent solids, and the centrifuge effluent has 2.04 per cent solids. The efficiencies of the various steps in per cent solids removal are: centrifuge, 60.7; clarifier, 82.8; and overall 93.3.

The plant is operated under the direction of George E. Henkel, Chief Engineer, and arrangements may be made for demonstration at any time with local or other sludge.

A Concrete Lesson in City Government

WICHITA, KANS.—Twenty students of municipal administration at the University of Wichita took over the reins of city government for a day when regular department heads stepped aside in their favor on April 29. Following a custom established in 1924, when high-school political science classes were accorded like privileges, the students were greeted by the City Manager in an early morning session at the City Hall. In a brief address the Manager outlined advantages to be gained from pursuing a career of public service, stressing the qualities of loyalty, honesty, and trustworthiness as being necessary to success in that field.

Each member of the class was assigned the duties of a particular city official and served in that capacity throughout the morning, assisted and instructed by the regular employees. The milk inspector visited dairies, the superintendent of streets investigated holes in the paving, the director of parks had trees sprayed for canker worms, the coordinating engineer for the soft-water project made a 35-mile trip to the new site; in short, all the temporary officials carried on routine work for the day.

A holiday spirit prevailed as the students reassembled after lunch and were taken for a ride atop a fire truck. Three of the city's fire stations were visited, where the class witnessed drills and were shown the elaborate fire-alarm system, equipment, and firemen's quarters. The remainder of the afternoon was occupied with a tour of the police station, which included investigation of the police radio station, chemical laboratory, fingerprinting room, patrol cars, and the jail.

The culminating feature of the trip was a police court session during which the group watched one of their own number perform upon the bench. The students were present for the regular weekly evening meeting of the City Commission, at which time due recognition was accorded them. A highly eventful day was ended for the group as they watched the transaction of the city's business.

Wichita city officials feel that the University students, in achieving a fuller understanding of the city's work, may be led to consider a career in government service as a worth-while object. The least that can be accomplished by setting aside such a day is to make of the young people more intelligent and sympathetic citizens. Receiving and attempting to adjust complaints from irate taxpayers discloses a new and unsuspected point of view to most of the youthful officials.

Last of all, this field day arouses interest in the somewhat abstract field of political science by affording concrete cases and actual situations to be met and dealt with. What should be one of the most important functions of a municipal university is fulfilled through its emphasis on city affairs.

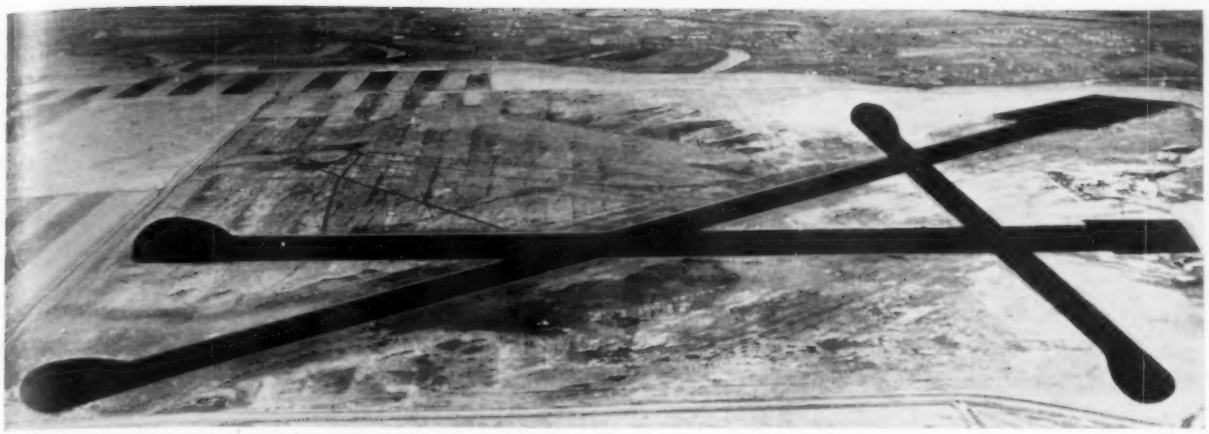
MARGARET HYDE.

City Government Radio Scripts Available

THE Educational Radio Script Exchange of the Federal Radio Educational Committee serves as a central clearing-house for educational radio scripts and production aids, and as a source of all kinds of information pertaining to the field of educational radio. Among its other services, the Exchange lends scripts from its circulating library, to educational and civic organizations planning radio broadcasts. The catalog of the Exchange* describes, on pages 23 to 26, the fifteen scripts on municipal government which it has for loan: three on general public administration in cities; six on police; six on fire prevention and control.

"City government is a business—make it your business" is the theme and motif of the series. The programs invite investigation into the efficiency of local government administration, and endeavor to promote understanding of problems which confront public officials. In each script, the dramatization of functions and services of a particular department of local government is followed by a brief address by the executive head or sub-head of the department, who is then interviewed by "Mr. Question-Master" in a short, pertinent "quiz period."

* Published by the Federal Radio Education Committee, with the cooperation of the U. S. Office of Education, Federal Security Agency, Washington, D. C.



Airport for Small City

Great Falls Establishes a New Airport with Maximum Runway of 6,040 Feet

AN AIRPORT which represents an investment of nearly $650,000, and which has brought commendation from Federal and airline authorities, has been completed by the city of Great Falls, Cascade County, Mont., population, 30,000. The project was made possible through the cooperation of the city, the PWA and the WPA. Of the total cost, $200,722.15 represents expenditures of WPA, and $148,185 a grant from PWA, and $175,000 was secured through a city bond issue. The balance is accounted for by other expenditures of the city, county and other agencies for purchase of site and for field development.

Facilities

The airport has four runways, one of which is 6,040 feet and another 4,400 feet in length. The

The Municipal Hangar

hangar, an impressive modern concrete structure, is 204 x 125 feet, with a shop 30 x 100 feet. The full frontage of the hangar is 258 feet. This structure is built with modified Warren steel trusses which allow for 2-inch expansion and contraction. A Byrne overhead canopy door in two sections, totaling 200 feet long by 36 feet high, was installed. The roofing is of built-up asbestos felts on 2-inch Thermax. The concrete apron is 258 feet long by 100 feet wide, and the exterior of the hangar is of rubbed waterproof concrete.

The administration building has a total floor area of 13,085 square feet, and is a frame structure of combination steel and mill construction, with exterior of stucco on metal laths. A copper theodolite dome on the top of the building provides a miniature observatory opening in orange-peel fashion. The heating system is a Denham differential vacuum two-pipe system, fully automatic, and supplied with steam by two 180-hp boilers fired with oil. This system supplies heat to both the administration building and the hangar. The administration building is 198 feet

The New Administration Building at the Great Falls Airport

long with an ell 80 feet long. The concrete apron in front of this building is 200 by 100 feet.

Revenue

Revenues of $1,300 have been realized monthly since November, 1939, from rentals to the Western Air Express, Inc., the Inland Airlines, Inc., the United States Weather Bureau, the U. S. Customs and Immigration Services, and the CAA, all of which have accommodations in the administration building. Other facilities include a restaurant, an emergency ward, and a post office. A six-car personnel garage is available, and a five-room residence is provided for the airport superintendent.

Development of the airport has increased interest in aeronautics, and private flying schools and extension of existing airlines into Canada and possibly to Alaska are expected within the near future.

The city operates the airport through the Great Falls Airport Commission, composed of C. T. Busha, Jr., Chairman, Frank E. Flaherty, Reynold C. Dahl, Paul Mateucci and Fred J. Martin. Mayor Julius J. Wuerthner is an ex-official member of the Commission, and W. P. Harrison, City Clerk, is Clerk of the Board. A. Z. McIver was the architect for the buildings, and Lease & Leigland were the general contractors.

Des Moines Spends $500,000 for New East-West Artery

University Avenue Improved for Eight Miles by City, Doubling Traffic Capacity

BY performing a major operation on University Avenue at a total cost of $500,000, the city of Des Moines, Iowa, has more than doubled the use of this east-and-west route through the city. The avenue was straightened in some sections, warped intersections were widened, grades were reduced, several bottlenecks and dead-end square turns were wiped out, including one section where a 20-foot right-of-way was widened to 80 feet; all these creating a needed major traffic artery out of what was an overloaded secondary route. The removal of 300 trees was the most painful part of the operation and the part which caused the greatest complaint, but no trees were sacrificed unnecessarily. The project was instituted as a utilitarian measure to reduce congestion, and the loss of a portion of the trees was part of the price.

Many houses were moved or razed, some of these being acquired by purchase at prices agreeable to both parties, while most required court proceedings and condemnation. The cost of $500,000 included the purchase of required additional right-of-way and the houses thereon, as well as the actual construction. A paving district was created, including all property benefits, and 60 per cent of the cost of materials was assessed against the real property in the district, the balance being paid from general funds.

Section	Work Done
E. 33d to E. 30th,	all new work, repaved (double-track street-car line E. 30th to E. 32d)
E. 30th to E. 24th,	widened from 30 to 42 feet, 6 feet on each side
E. 24th to E. 18th,	nothing done because of overpass to be built later
E. 18th to E. 19th,	relocated and realigned, new 42-foot pavement
E. 9th to W. 5th,	left, 42-foot pavement in place
W. 5th to W. 10th,	entirely new alignment and new pavement
W. 10th to W. 17th,	new pavement, 42 feet wide
W. 17th to W. 20th,	widened 5 feet on each side to 50 feet (double-track car line)
W. 20th to W. 24th,	new 42-foot pavement
W. 24th, to W. 25th,	widened 4 feet on each side to 50 feet (double-track car line)
W. 25th to W. 27th,	nothing done (double-track car line)
W. 27th to W. 31st,	widened 4 feet on each side to 50 feet (double-track car line)
W. 31st to W. 48th,	new pavement, rebuilt 50 feet wide (double-track car line)
W. 48th to W. 63d,	widened 6 feet on each side to 42 feet

The labor was furnished by WPA, and a contract was let for furnishing the concrete for paving delivered on the subgrade. The relief labor then did the finishing of the slab, as well as preparing the subgrade ahead, set the forms and placed the required bar reinforcements.

The work extends from East 33d Street across the entire city to West 63d Street, and the State Highway Commission is to build one mile of highway, continuing the improvement from East 33d Street to the east city limits, since University Avenue is Iowa State Route 60.

In general, the street was widened to 42 feet where there were no street-car tracks, and to 50 feet where there were such tracks. A total of 125,000 square yards of 9-7-9-inch concrete paving was laid, with a 20-foot strip down the center screeded with a mechanical finishing machine, except for car-line sections, and the sides completed with strips of variable widths. The above tabulation shows the character and extent of the work by city blocks from end to end.

This work was started in July, 1938, with the clearing of trees and some grading by hand. Concreting was started September 15, 1938, and completed November 21, 1938, after which along the entire street retaining walls, steps and other improvements were made to adjust to new lines and grades, and all work was completed by June, 1939. The work was done under the direction of John MacVicar, Superintendent of Streets, and John Tippee, City Engineer.

Old Brick Sewer Relined

When Heavy Bridge Traffic Threatened Old Sewer Paved Invert Type Solved Problem of Rehabilitation

By JOHN H. BARTH
City Engineer,
La Crosse, Wis.

Section of Old Brick Sewer During Relining

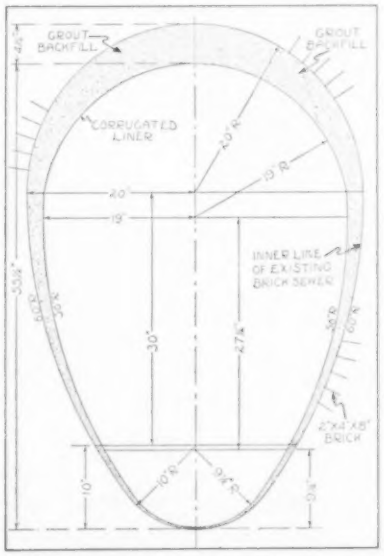
WHEN the 50-year-old, two-ring, egg-shaped, main trunk sewer on Cass Street, in La Crosse, Wis., was inspected in the fall of 1938, it was found to be in bad shape. It was cracked all along the top, and the top was settling. Erosion had also cut out the inner ring of brick along the invert of the sewer in many places. The inspection had been made because the driving of sheet piling for footings of the piers for the new high-level interstate free bridge, over the Mississippi River, had weakened the sewer. During a heavy rain it had failed, and approximately 30 feet of it caved in. It was fortunate that this collapse occurred far enough from the footings so that the bridge foundations were not injured.

This collapse and the inspection made it evident that the sewer was in immediate need of repair, and various methods were suggested and studied. Tunneling a new sewer was abandoned because the elevation of the sewer would be below the maintained pool elevation in the Mississippi River, so that the tunnel would have had to be driven under water. Since the ground is all a sandy soil, the tunneling operation would have been very expensive. Relining the old sewer with an inner reinforced concrete shell would have decreased the capacity to such an extent that the sewer would be inadequate, since this is a combined system.

After considerable investigation, it was decided to reline the sewer with Armco corrugated metal pipe having an asphalt coating and a smooth invert pavement extending part-way up the sides of the pipe. The asphalt on this pipe is bound to the pipe by an asbestos lining applied immediately following hot galvanizing of the pipe.

Operations

The Cass Street sewer is a main trunk line and it was not possible



The Scheme of the Cass Street Sewer Repair, La Crosse, Wis.

to divert the sewage so that the liner could be inserted in the dry but the repairs had to be made while the sewer was carrying its normal flow. The corrugated pipe was formed to fit the egg-shaped sewer, losing only 4 inches in vertical height and 1 inch in its horizontal dimension at the widest part of the egg, and fitting snugly at the narrow invert in the bottom of the sewer.

To be certain that the new liner could be threaded into the old sewer, a special investigation was made. In order to install the liner, a pit was excavated by open cut around the old sewer, and the fabricated sections were taken into the sewer from this pit and hauled through the sewer to the final positions. The sections of pipe varied from 8 to 14 feet in length, depending on the breaks in the old sewer, and special bands were used to connect the sections as they were placed.

Lateral connections were made with metal collars cut into the new liner during the progress of the work. After about 100 feet of liner sections had been placed and connected, the space between the liner and the old brick sewer was backfilled with cement mortar grout of a 1:2 mix, using sufficient air pressure to force in the grout and fill all voids and cracks in the old sewer as well as the space between the liner and the brick.

After the job was completed, it was pleasing to note that the carrying capacity of the sewer had been reduced only slightly, since the

Threading the Liner Pipe into the Sewer. Carl A. Wahlstrom, Superintendent of Sewers, at Right, and the Author

velocity of flow in the sewer had actually been increased. All this work was done at a considerable saving in cost to the city over either replacement of the sewer by open trench methods, or by tunneling, even if these methods had been feasible to use. The old sewer had over fifty years of life to its credit and it is believed that the relined sewer will have equally long life. The work of relining the sewer caused no interruption to surface traffic on the street or the car line, nor to the work on the Mississippi River bridge being constructed by the Wisconsin Highway Commission.

The work was carried on under the supervision of Carl A. Waldstrom, superintendent of sewers, by city forces with city equipment, except for the hoist and the grout gun, which was furnished by the company from which the culvert pipe was purchased and which also furnished two skilled superintendents to aid in organizing work.

Reducing Magnesium Hardness

(Continued from page 55)

thence through the recarbonation chamber and thence to the filters. Split treatment can also be applied by proper manipulation of the valves. In split treating, most of the raw water is passed through the first Precipitator, where lime and coagulant is applied. The water leaving this Precipitator then joins with an additional amount of raw water and coagulant and enters the second Precipitator for final treatment before application to the filters.

We have found that this split treatment gives the most satisfactory and economical results, because at least 50 parts excess lime are required to successfully remove the high magnesium content of the water. The split treatment of course also eliminates the need for recarbonation, and effects an appreciable saving, especially during the months when heat is not needed. The average turbidity of the water leaving the second Precipitator for filtration is 5, and the average total alkalinity 82. The filters reduce this alkalinity and hardness to 70 ppm and the turbidity to zero. The pH of the finished water varies according to the season from 9.3 to 9.6. The finished water contains about an average of 18 parts calcium carbonate and 50 parts magnesium carbonate.

The filters have a sand bed 30 inches in depth supported on 18 inches of graded gravel. Standard cast iron perforated pipe underdrains are used. The wash-water rate varies from 30 inches rise per minute to 42 inches rise per minute, depending upon the water temperature. Rate controls from the four filters are connected by a Simplex master control and automatically adjust all filter rates according to the volume of the incoming water, and deliver the filtered water into the clear well directly underneath the four filters. The pumps at the filter-gallery floor level pick up the water from this clear well and deliver it to a concrete reservoir, whence it flows by gravity to the city.

The costs incurred in the construction of the plant were as follows:

Filter structure, heating, lighting, and plumbing	$42,726.17
Influent and effluent lines and sewers	6,467.82
Equipment and piping	33,084.95

Members of the Fergus Falls Water and Light Commission during the planning and construction of the plant were V. C. Jensen, President; John A. Knoff, H. E. Swenson, and C. J. Wittbecker.

The Parks of Honolulu

(Continued from page 52)

it a real park, top-soil must be added and irrigation and drainage planned. It will be a slow and expensive operation but the Park Board will build it for permanence.

The Park Board is responsible for 48 separate city parks and playgrounds, making a total area of 423 acres. To handle this big job, the Board received $275,000 in 1939 from the city and county of Honolulu. This is about 3 per cent of the gross revenue of the city.

The present Board is made up of Lester McCoy, Chairman; Mrs. Walter F. Dillingham, Philip E. Spalding, Reginald P. Faithfull, Edward M. Ehrhorn, Christian R. Holmes and Herman V. von Holt. Chairman McCoy adequately expressed the views of the Board when he told a civic group:

"I ask your suppport in resisting the pressure to develop things quickly and cheaply and in the long run ruinously and expensively."

Relief Paving by Assessment

(Continued from page 64)

per ton removed. Most of the quarrying is done by hand, especially stripping, although some drilling and shooting is done.

During the first year, 1936, six streets were improved. The total length was 1,620 feet, amounting to 32,000 square yards. In 1937, 10 streets totaling 10,038 feet, or 34,277 square yards, were completed; in 1938, 22 streets, 26,225 feet, or 78,213 square yards. During the past summer, 1939, 17 streets with a length of 14,111 lineal feet, or 45,164 square yards, were improved.

A summary of the four years is: 58 streets completed for a length of 59,299 feet, totaling 189,656 square yards. The total cost of the work to the city, that is, for materials only, has been $162,124, of which 92 per cent has been assessed to the property, leaving 8 per cent, or $13,103, as the cost to the city. The cost per square yard over the period has been 92 cents.

At the present time petitions are filed with the city to improve 56 more streets of various lengths. Streets are improved in the order in which the petitions are submitted to the City Council.

Where Can Industry Flourish Best?

Decentralization? Centralization? or Recentralization?

By Arthur Bassin

INDUSTRIES have been leaving the congested centers of our large cities, and we are told that they are being decentralized. In fact, there are those who would convince us, now that we have the advantages of power transmission, motor transport, radio and numerous other modern contributions to industrial mobility, that our aim should be toward a wholly decentralized pattern with small units of production, and that the trend is in that direction. If this were so, it would certainly mark the most basic change in the development of production since the industrial revolution, a development which has heretofore been persistently dominated by a movement toward centralization.

Actually, the general run of industrialists today appear to display no such revolutionary tendencies. On the contrary, it appears that industry, as a whole, is attaining a higher degree of centralization than ever before. A certain amount of decentralization may be attributed to the alluring myth of lowered labor costs in rural areas or to the mistaken notion that it is necessary to leave the city far behind in order to avoid its congestion.

The Case for Decentralization

However, much of what is often characterized as decentralization is not that at all. It is rather a recentralization, through which industries are moving to the outskirts and the hinterlands of the large cities and thereby assuming a more appropriate location as part of an even larger centralized pattern, the metropolitan region. In most cases the close ties between the moved plants and the central cities continue and, in fact, grow stronger.

Industries and their requirements are of course so widely varied that it is impossible to set any rule that applies to the whole. Thus, some enterprises in locating or relocating their plants in less developed sections of the country have found sound economic justification for such moves. Occasionally, small manufacturers, especially during depression periods, have been able to gain certain advantages in the distribution of their products by moving to small isolated communities where large-scale industries with their bulky plant and organization could scarcely penetrate. Other industries have found themselves drawn toward the country so as to be close to their source of raw materials, especially if they use large quantities of a single material which is bulky or perishable. There are, furthermore, several types of enterprise, such as mining, petroleum, fishing, and lumber, which by their nature tend to remain decentralized.

Although the two are not necessarily related, there is a general tendency to associate location in a small town with decentralization, and to point to industry's search for sites in smaller communities as indicating an impending dismemberment of the centralized pattern. Property values, building costs, insurance rates, rents, living expenses, wages and taxes are all generally higher in larger cities. Thus production costs tend to be higher and plant expansion more difficult. The greater possibility of expansion in a small town is of immediate interest to labor as well as to management, for there seems to be very little prospect of eliminating unemployment without a very substantial increase in industrial production. The small town also interests labor from the standpoint of its offering better opportunity to procure adequate housing and family living conditions. Often an added attraction to the manufacturer is the absence of rigid zoning ordinances and exacting factory codes, as well as the smoke-abatement legislation, anti-fume ordinances and restrictions regarding waste disposal which the larger cities must impose.

One does note, with satisfaction, that much of the ballyhoo coming from small but ambitious communities concerning special inducements such as lowered wages and taxes tends to be soundly discounted nowadays. Industry seems to be learning from experience that wages are generally apt to follow capital investment, and the small localities are coming to realize that they can ill afford the industrial subsidies which they were once so anxious to grant. Yet it is undeniable that to manufacturers and industrial workers the smaller community offers many real advantages which they could never obtain in the congested centers of our large cities. The big city's higher cost of production does not necessarily result in a higher delivered-to-customers cost, for increases in production costs may be, and frequently are, offset by other cost factors. However, there can be no doubt that, with increasing urban congestion, obstacles to efficient production and distribution tend to become so great as to increase the ultimate cost to the consumer, despite the redeeming distribution economies of the large center. When this is coupled with a tendency to cramp industrial expansion and to in-

To Attract or Hold Industries

municipalities must give consideration not only to current trends, but to the possibility of controlling or altering those trends through farsighted planning. Not to drift with the current, but intelligently to control the current, is the challenge to municipal statesmanship.

crease hazards to the personal well-being of the worker and his family, it becomes apparent that the movement of industrial sites toward less congested locations will in all likelihood continue and even become intensified.

The Case for Centralization

It is fallacious, though, to assume prematurely that this movement marks the decentralization of industry. In general, manufacturing originally moved into centralized groupings for certain substantial reasons. Most of these reasons are still effective. Industries serving large markets still find it very advantageous to be located near them, and the markets showing the most important growth, according to population figures, continue to be within the larger urban areas. Furthermore, the new mobility introduced by the automobile, which has been frequently hailed as an important decentralizing factor, seems to be operating in quite the opposite direction by making the metropolitan market more accessible to wider areas and thereby diminishing the relative importance of intermediate towns as trade centers. Despite some optimistic predictions, the extensive use of motor-truck transportation between central markets and distant factories must likewise be discounted, by virtue of the serious difficulties arising out of traffic congestion.

Not only do large urban centers have many people, but they also have many industries, and they generally have a wide range of industrial diversification. To the manufacturer producing his goods chiefly for other industries, this is a significant fact. In many forms of production the finished article represents an assemblage of a large assortment of specialized parts many of which are produced in separate plants, and quite often the various parts are assembled as used, instead of, as formerly, being stocked in advance. With the time element becoming increasingly important in the industrial process, obviously it is to the distinct advantage of such industries to be located close to each other. Many industries use semi-finished or processed materials which they do not get directly from another plant. In such cases it is especially important that in large cities supply-houses are always near with large stocks and varieties of raw or semi-finished materials or allied products.

Industry finds the centralized grouping of many plants also advantageous from the standpoint that it tends to provide a ready supply of experienced labor and professional and technical experts. Labor, on the other hand, should derive an added degree of security from the greater employment opportunities of the large city, were it not for the fact that the creation of new plants does not keep pace with the amount of technological unemployment. Although "labor trouble" is generally identified with the larger centers, manufacturers, locating in small isolated communities have by no means been immune. Often the difficulty arises out of the distinct psychological difference between the worker's normal rural existence and his new industrial duties and surroundings. Moreover, after he has been "industrialized," the worker quite frequently develops a desire for urban wages and ways of living. In this respect, the radio, which like the automobile has been widely acclaimed as an instrument of decentralization, has instead had much greater effect in spreading the gospel of centrally organized modes of life.

Management itself is often averse to being isolated in a small town. The alert industrialist realizes that one of the essentials in the modern development of industry has been the stimulation of new ideas derived from close contact among managers and technicians of different plants and between management and its consumers. In addition, large urban centers offer the close contact with financial and commercial facilities which the manufacturer requires. Also included among the industrial advantages of the large city must be its continuing superiority as a shipping and receiving point, particularly for long-haul freight, and its economical provision of power, heat, water and other utilities. In connection with the familiar prediction that decentralization would be largely brought about by the use of many small hydroelectric plants scattered around the country along rivers, and making cheap power available at widely distributed points, it is noteworthy that most regions throughout the country lack the required natural characteristics and must depend upon steam power plants. Thus far, the improved transmission of electricity has served chiefly to increase the size and importance of metropolitan centers.

The Economic Location

Viewed with reference to raw materials, transportation, markets, labor and various factors connected with production and distribution of goods, location has its place in time and space in the same manner as practically all factors affecting human life. There is no optimum location for any particular activity for all time.

—By Herbert S. Swan, in "Streamlining a City to Attract an Industry."

The Case for Recentralization

It is quite apparent from their movements in recent years that, while industries are being forced for the sake of economy to move out of the congested portions of our large urban areas, they generally remain within the orbit of centralized urban activity. Interrelations among manufacturing plants are becoming more complex and sensitive, and to an increasing extent industry is being set up on an assembly line basis, in which the operation of one plant is contingent upon that of another. Thus, modern functional specialization, requiring the geographical concentration of industry, is probably the most potent single factor tending to draw industrial establishments together into large centers. It appears safe to conclude that industry will not abandon large urban centralization but will instead seek its appropriate place within the pattern of the metropolitian area. In fact, it is entirely likely that manufactures which are at present isolated and detached will continue to move gradually toward inclusion into the metropolitan sphere.

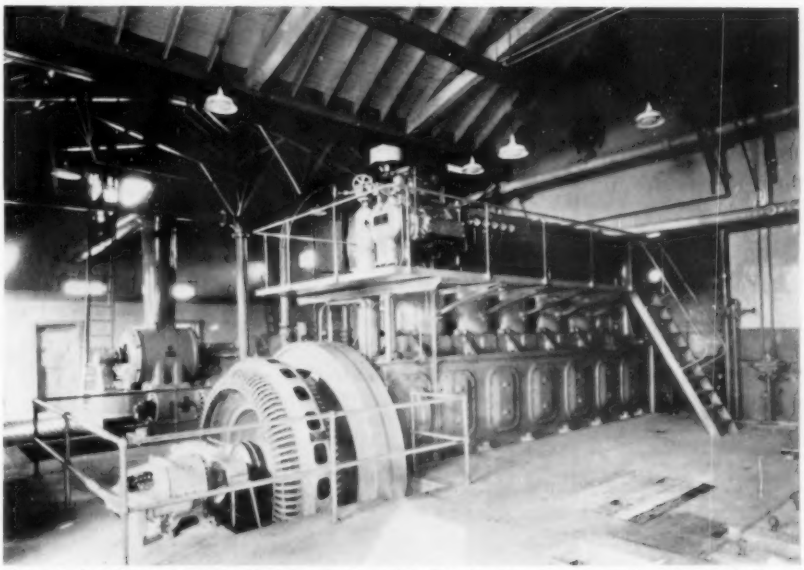
Families and factories are leaving the congested centers of our large cities to settle in nearby open spaces. At the same time, they also appear to be leaving isolated towns

(*Concluded on page* 83)

Design and Growth of a Modern Diesel Electric Plant

Owned by the City of Independence, Iowa

By R. E. GUERNSEY
Superintendent, Light and Water Department



One of the Diesels that Pay $13,000 Cash and $7,500 in Free Power to the City Each Year

THE municipal power and light plant at Independence is most interesting in the history of its inception and of its growth to the efficient diesel plant it is today.

The original plant (1886) was steam, and operated continuously under municipal ownership until 1924, when the Council decided that it would be more economical to purchase current at wholesale. An agreement was entered into with the utility whereby the city was to purchase all of its requirements at the switchboard for 2 cents per kwh. This agreement continued in effect until 1931, and during this period the city kept fires banked at all times in case of an emergency or outage of the high-line. The necessity of keeping fires banked naturally made the total cost of power to the city considerably over 2 cents.

In March, 1929, Horace G. Kelley, a retired manufacturer, was elected mayor, and soon after taking over the office he became keenly interested in the power question. For a year Mayor Kelley investigated what other municipalities were doing, and by the spring of 1930 he was convinced that if the steam plant were replaced with up-to-date equipment a substantial saving could be effected over the 2-cent rate then being paid the utility. Mayor Kelley laid the results of his investigations before the City Council, and his information as to what was being done elsewhere so amazed the Council members that they decided to visit other towns and learn the facts for themselves. The investigations of the Council soon convinced them that the Mayor's claims were conservative, and they accordingly voted to go ahead with the change, first submitting the issue to the people at a special election. The election carried three to one in favor of the Council's action.

In the spring of 1929 the writer was employed by the city as superintendent of the water works and power plant, and Walter E. Schwob of Iowa City was engaged as consulting engineer. Mr. Schwob spent some time studying the problem and finally recommended that the city discard all existing steam equipment and install a three-unit diesel plant. He also stated in his recommendations that if the city felt that the initial cost of a three-unit plant would be too burdensome, one unit could be installed and the others added at such later dates as the revenue from the plant would allow.

This plan was adopted, and a contract was awarded in December, 1930, for one Worthington 5-cylinder 18 x 25, 675-hp air-injection engine with an Allis-Chalmers 430-kw generator. Shortly after the contract was let, an injunction was filed by several local citizens in the interests of the utility, but in the following spring the courts ruled in favor of the city. The engine was then installed and was placed in operation in November, 1931.

Mr. Kelley retired from office in March, 1931, and was replaced by L. C. Simmons, a retired business man, pledged to carry on the work of his predecessors. Messrs. Leytze, McClernon, Clark and Gray, and Dr. Shellito, the Council members to whom credit is due for their support of Mr. Kelley in the fostering of the plant, remained in office, and one of the two opposing councilmen was replaced by Dr. Plank, a keen supporter of the project. It was a great loss to this body of men when Mr. McClernon and Dr. Shellito met untimely deaths before they could see the realization of the program.

After the first engine was placed in operation, it was run continuously eighteen hours per day, and the old steam Corliss unit six

hours per day or during light night loads. The results from this first unit were so gratifying that the Council decided that it should be supplemented by a second unit the following year. It was decided that this unit should be approximately 450-hp in order to secure the most economical results during the light night and Sunday loads. Bids were taken on this unit during November, 1933, and a Busch-Sulzer, 13 x 17, 480-hp, 360-rpm air-injection engine with a General Electric 330-kw generator was purchased. When this engine was installed, the 150-kw Corliss engine was removed from the plant and the 300-kw Allis-Chalmers steam turbine was left as standby. From the time the second unit was placed in service, the city generated all its energy with the diesels, and the turbine never had to be started up again.

During the spring of 1934 it was decided to install the third unit and thus complete the original program. Credit was again due the Council for their vision and foresight in adding the third unit at that time, for the rapid increase in consumption and peak loads would have required starting up the old steam plant in case of failure of the large engine, and this would have been extremely hazardous on account of the condition and age of the boilers. Bids were taken in July and contract was awarded for a Worthington 6-cylinder 17 x 25, 750-hp direct-injection engine with a General Electric 500-kw generator. This engine was placed in service in November, 1934, and all steam equipment was subsequently removed.

The Financial Results

Owing to the remarkable operating economy of the plant, and also the efforts of Alva Norton, City Clerk, with his work on rates, the plant, in addition to providing low-cost power, has been a source of sizable revenue to the city. The average rate per kwh for residential consumption has dropped from 9 cents in 1929 to 5 cents at present. The cash contributions by the system to the city have been approximately $13,000 per year since the installation of diesels, and the evaluated free service contributed by the system to the city has been approximately $7,500 a year.

For 1935 the operating cost of the plant, including fuel oil, labor, superintendence, maintenance and all miscellaneous supplies, was 7.83 mills per kwh; 11.1 kwh were generated per gallon of fuel oil, and 2,630 kwh per gallon of lubricating oil. The peak plant load was 640 kw and the average load was 232 kw.

Features of the Installation

Since the plant is located in the center of town, and there are residences within 300 feet, the questions of vibration, noise, and unsightly equipment were given careful consideration. The first unit was mounted on cork, but owing to the favorable foundation and soil conditions the second and third units were installed directly on top of their concrete foundations and there have been no difficulties from vibration. Silencing of the air intake was accomplished by quite an interesting method. The intake pipes extend horizontally from the engine and then vertically up into a common filter house near the roof, where Reed type air filters are mounted on the top of the pipes. This chamber is equipped with a louvred window, and its capacity is such that all intake noise is effectively silenced.

Exhaust lines are run horizontally to pot-type exhaust silencers which are bricked in to form not only a sound-deadening chamber but also a duct through which a blower circulates air around the hot silencers and then through a register to heat the building.

River-water conditions were such that a water softener was necessary, and a softener of the zeolite type with salt recharging system was put in.

The location of the fuel-storage tanks is quite unusual. Two 20,000-gallon tanks are installed in the building in a fireproof room, and the fuel is pumped to these tanks from an unloading rack and pump at the railroad siding three-quarters of a mile away. There is one motor-driven fuel transfer pump to transfer fuel from the storage tanks to the individual overhead day tanks, and fuel meters are located in the line between the storage tank and each day tank, so that fuel consumptions for each engine can be recorded. There is a fuel-oil centrifuge in the plant, but it has seldom been found necessary to use it.

The lubricating oil is purified and reclaimed with a batch system using a 10-gph fullers' earth type filter through which the oil is forced at about 450 degrees F. with the assistance of compressed air. The compressed-air application was worked out at the plant.

Growth is indicated by 2,002,500 kwh produced in 1935 at a cost of $17,789, and 2,830,500 kwh in 1939 at a cost of $23,461. In the first instance, 1935, the unit operating cost was $0.00888 per kwh; the 1939 unit cost was $0.00828 per kwh.

PLANT EQUIPMENT

Engines
- 1 Worthington 5 cyl. 18 x 25 675-hp 225 rpm air injection
- 1 Busch-Sulzer 13 x 17 480-hp 360 rpm air injection
- 1 Worthington 6 cyl. 17 x 25 750-hp 225 rpm solid injection

Generators
- 1 Allis-Chalmers 430-kw with chain-driven exciter
- 1 General Electric 330-kw with chain-driven exciter
- 1 General Electric 500-kw with chain-driven exciter

Governors
- Massey Machine Co. on 18 x 25 Worthington and 13 x 17 Busch
- Woodward on 17 x 25 Worthington

Air Intake Filters
- American Air Filter Co.

Starting Air Compressors
- Worthington 1-2 stage V belt-driven

Exhaust Silencers
- Worthington on Worthington engines
- Busch pot type on Busch engine

Exhaust Pyrometers
- "Alnor" Ill. testing lub.

Fuel-Oil Meters
- Worthington on Worthington engines
- Arctic water on Busch engine

Fuel Oil Centrifuge
- Sharples Specialty Co.

Cylinder Lubricators
- Manzel on Worthington engines
- Madison on Busch engine

Lubricating Oil Purifier
- American Tank Car Co.

Cooling Water Pumps
- Three Worthington: two pumps, 300 gpm each, against 60-foot head; one 500 gpm against 60 feet

Water Softener
- Graver Zeolite

Switchboard
- Westinghouse throughout except GE voltage
- Regulator and recording water meter

Foundation Insulation
- Armstrong Cork under the 675-hp unit

Motor-driven Lub. Oil Pump
- Worthington: This pump is connected to each engine in such a way that upon failure of any pump it can immediately be started up.

Improvement in Methods of Recording and Indexing

Real Property Instruments

By WALTER FAIRCHILD
Member of the New York Bar and former Special Deputy Register of New York County

A PUBLIC system of recording instruments affecting real property has existed in this country since colonial days. This system of recording instruments in the United States is one of the few legal concepts not traceable directly to the common law of England. Recording acts did not appear in England until the middle of the 19th century.

The first legislation for the recording of deeds and other instruments in New York was promulgated in 1664 by Governor Nicolls, the English Governor. The Clerk of the Court of Sessions was made the recording officer.

In the United States, the county clerks, who generally are also the clerks of the court, have been designated as the recording officers for real property documents. Because of the habit of court clerks of indexing cases according to the names of the parties, which is necessary in personal litigation, the system of keeping track of title documents by alphabetical indexes has become the established method.

In early days and in small communities where transactions were few, this illogical method did not present any great hardship. As years went by and the population grew, the confusion caused by mixing all instruments affecting property within a county in libers with name indexes only, became a great burden necessitating "searches" by specially trained people and retarding the examination of title for weeks and sometimes months.

The recording system is a derivative method of proving title. That is to say, the recording of a deed does not determine the title according to the language of the instrument, but merely preserves a record of the words of the instrument. The legal effect of the document is a conclusion to be determined by the one dealing with the land. Because of the derivative character of titles under the recording system, defects of title may arise at any point in the history of the title, even though the act or omission may have occurred a hundred years ago.

Registration by the Torrens System

Defects arising from the derivative character of title may be caused not only from omissions or errors in the public record, but also from happenings which are not required to be of record, such as death, marriage and insanity. These matters are referred to by professional examiners as "business risks." The effective cure for such risks is to get rid of the derivative character of titles by establishing a title register for each parcel of land, made official by law and determining title according to the entries on the register. The registration system of establishing title and transferring title by certificate is commonly known as the Torrens system, taking its name from Sir Robert Torrens, Land Commissioner of Australia and famous as the first registrar-general under the Australian registration law.

Improved methods of recording and indexing will not relieve the conveyancer of the responsibility of interpreting the effect of documents, but they will relieve him of the drudgery and danger of laborious "searches" to locate the particular instruments affecting the particular parcel of land under examination. These improvements may be enumerated as follows:

1. Locality indexes according to block and lot maps. Alphabetical indexes are retained for collateral purposes.

2. Money judgments to be made specific liens and posted to the property of the particular judgment debtor.

3. Notices of *lis pendens* and mechanics' liens to be indexed to the particular property affected.

4. Judicial sales under foreclosure, partition, execution and all decrees determining title to land, including probate of wills and heirships, to be filed in the recording office and indexed against the property affected.

5. Concentration of all indexes within the office in a single volume.

6. Lot sheets for each parcel of land upon which every instrument affecting the given parcel is noted.

This enumeration relates to the mechanics of indexing. Appropriate legislation is necessary for the official adoption of indexing by locality for the purpose of constructive notice.

Advantages of Block and Lot System

In New York County the method of indexing property by blocks was put into effect January 1, 1891.

The advantages of the lot system are obvious:

1. The necessity for protracted searches is eliminated. Under the alphabetical system records grow more complex with the passing of years. A misspelling causes the searcher to lose track of his chain of title. The acquisition of more than one parcel of land by an individual results in the unnecessary examination of many instruments not in the chain of title. A single developer may deal in hundreds and sometimes thousands of parcels, every deed of which must be examined by the careful searcher to eliminate those which do not affect his particular lot.

2. The time necessary for searching is reduced.

3. The expense of searching is lessened.

4. The lot system is simple and understandable even to the layman.

5. The use of the locality system increases the marketability of land. Transfer of title becomes simple and inexpensive, thereby increasing its value as a more fluid asset.

The base of every locality or block and lot system is the estab

lishment of an official land map which shows blocks by their surrounding streets, roads or other physical demarcations. Each block receives a number. The block is divided within itself into the component lot or plots, which are designated by numbers. Every lot may thus be identified by reference to the block and lot number.

In many communities the taxing authorities have made more progress than the recording officers in working out land maps. In other communities the reverse is true.

In any case, the land map adopted should be used for taxing purposes as well as for recording purposes.

The adoption of a uniform land map with numbered blocks and lots or numbered sections and plots is of great financial advantage to the taxing authorities.

It is related that the city of Long Beach in Nassau County, N. Y., having adopted the locality system of keeping tax records, added $59,000 to its collections in the first year for properties which had been overlooked under the name system.*

* Nassau County Development of Block and Lot Indexing, U.S.W.P.A. Project No. 6101 (465-97-3-46); Ransom and Povio, Nassau County, New York, Finds Land Map Cuts Costs and Increases Revenue (Oct., 1939) Am. City 58.

EDITORIAL NOTE.—This article summarizes a paper of the same title published in the December, 1939, issue of the *Georgetown Law Journal* (Vol. 28, No. 3) to which reference is made for a more detailed discussion of the subject.

Small Towns in Large Cities

By LESTER H. ROBB
Executive Secretary, Cincinnati Advisory Board for Neighborhood Community Councils

THE city of Cincinnati, realizing that the problems of juvenile delinquency and crime could be met successfully only by the coordinated efforts of all agencies working together, has in conjunction with the Cincinnati Community Chest and the Junior League, set up an Advisory Board for Neighborhood Coordinating Councils. This Board is composed of representatives of broad civic interests, including the City Manager, the Director of the Community Chest, the Judge of the Juvenile Court, the Superintendent of Schools, and the Director of Catholic Charities. City Manager C. O. Sherrill has assigned a staff member of the Welfare Division to act as Executive Secretary to this Advisory Board and to help in developing Neighborhood Coordinating Councils in metropolitan Cincinnati. August Vollmer, outstanding police authority, recently stated:

"The most powerful deterrent to delinquency and crime is found in the coordinated efforts of all constructive forces in the community, as exemplified in coordinating councils. No other method has as great a chance of actually attacking this problem with success as that employed by this movement. . . . The coordinating council is the only agency attacking this problem through the process of community cooperation. Such cooperation is entirely lacking in most communities, and this lack constitutes the greatest weakness in the American form of government."

The growth and diversification of governmental and general welfare functions has made cooperation and coordination increasingly necessary in the last decade. As a nation, we have developed extensively isolated agencies and facilities for dealing with our many problems,—in fact, we are overorganized,—but coordination of these services for the good of the whole community has, until recent years, received little or no consideration. Growing evidences of this trend toward coordination in Cincinnati are to be seen in centralized and cooperative purchasing by the city of Cincinnati, the Board of Education, and the University of Cincinnati; in the formation of the Hamilton County Committee on Coordination and Cooperation, composed of representatives from the city, county, and Board of Education; in city manager government itself; and in such social organizations as the Community Chest and Council of Social Agencies.

Focusing on the Needs of Youth

Juvenile delinquency, crime, disease, and all other social problems flourish in the slums. It is here that wholesome living conditions and environment are lacking—that neighborhood forces and leadership for the building of character, citizenship and good health are also weak. It is important that governmental, civic, social and religious agencies unite and marshal their forces with particular care in these blighted areas and that every effort be made to develop leaders among the people living in such neighborhoods. This is the aim and purpose of Neighborhood Coordinating Councils.

In well-defined neighborhoods in Cincinnati these forces interested in the social improvement of their area come together as Coordinating Councils for the purpose of solving their common problems. They focus their attention and efforts particularly on the needs of youth. They are not new agencies but solely cooperative groups based on the age-old principle that the combined efforts of all agencies and citizens working together is far more effective than the efforts of each working alone and in competition with one another.

There are eight of these Coordinating Councils at the present time in Cincinnati. Several others are in process of formation. They have succeeded in securing new playground areas, in getting agencies and churches to sponsor more activities for youth, and in obtaining generally improved recreational and character-building services for their areas. This is truly a movement which is strengthening democracy at its roots, for it is bringing back the old colonial institution, the town meeting. There is joint planning, education, and action by professional leaders and citizens.

In a recent editorial comment, Herbert U. Nelson, Executive Vice-President of the National Association of Real Estate Boards, made the following statement:

"Undoubtedly we need to install within our cities some of the elements of the small town. We could do it only by bringing up neighborhoods as little communities in themselves and by making the big city a coordinated and well-planned collection of neighborhoods."

EDITORIAL NOTE.—An article on "Your New Town Meeting," by J. P. McEvoy, in the December, 1939, issue of *The Kiwanis Magazine*, states that there are 420 Community Coordinating Councils in the country, in cities and towns of all sizes. How they have started and what they have accomplished in several typical communities is described. National Headquarters is in Los Angeles.

Parking Meters are Popular in Norwich

By Richard L. Norman
Chairman, Board of Police Commissioners, Norwich, Conn.

ON Thursday, January 18, 1940, a cold, clear winter day, parking meters got their first test in Norwich. The streets in the meter area were bare at 9 A.M. and until afternoon, when the parking spaces began filling up.

When collections for Thursday, Friday and Saturday were counted, the 170 meters had taken in $93.54; $81.51 of it had come from 147 penny meters and the 23 nickel meters had been used by 261 persons.

Our time limits before the installation had been 10 minutes, 40 minutes, and 2 hours. We changed the first two limits to 15 minutes and 30 minutes—a mistake, especially as we allowed only 15 minutes in grocery-store districts where not all our shoppers could accomplish their errands even in 30 minutes. But most people appreciated the trial nature of the installation and bore with us.

Five weeks later we put in 158 more meters, many of them two-hour nickel meters, thus metering all the streets in the main business area. Friends were puzzled; antagonists were infuriated, although we lengthened some 15-minute areas to 30. Petitions were left in gas stations for opponents of meters to sign. We felt, however, that the majority of the parkers liked the meters, and the revenue proved that many people were using them.

Complaints continued about the shortness of time, and late in March many of the 30-minute meters were made 1-hour meters—*still for a penny*—and today 343 meters are bringing in about $230 a week.

To test opinion after 90 days, we ran the accompanying coupon for a yes and no vote, together with an article on various phases of the problem, for seven days prior to a public hearing; 435 ballots came in, 364 favorable and 71 adverse. The local Chamber of Commerce had made a survey of shoppers in the surrounding towns as well as a spot check at the meters, and the result out of 448 interviews was a favorable percentage of 84.8 per cent. Both of these surveys showed marked approval by the out-of-town shoppers, who said that they preferred coming to this city for shopping because they could now find places to park.

At the public hearing, 50 persons appeared and no views were registered in opposition to a further trial period of the meters.

The time limits on our meters are now:

19 —	15 minutes for 1c
69 —	30 minutes for 1c
159 —	1 hour for 1c
96 —	2 hours for 5c
343	($238.44 per week averaged first three weeks of April)

The 15-minute areas still seem proper for a three-car space adjoining the central terminal for the local bus lines, a four-car spot where no parking was allowed formerly, and two spots in front of banks.

Our 30-minute areas adjoin the 15-minute areas, and the former limit was 10 minutes, or no parking, and one old 40-minute block.

NWICH. CONN., BULLETIN, FRIDAY, APRIL 19, 1940.

MEETING AND BALLOTS FAVOR PARKING METERS FOR CITY USE

POLICE COMMISSIONERS TO HOLD HEARING ON PARKING METERS

DO YOU approve of parking meters as a method of enforcing parking regulations where now installed in the Norwich streets?

YES ☐ NO ☐

NAME .....

ADDRESS .....

AUTO REGISTRATION NO. .....

Please Leave At Or Mail To Police Headquarters, Norwich, Conn.

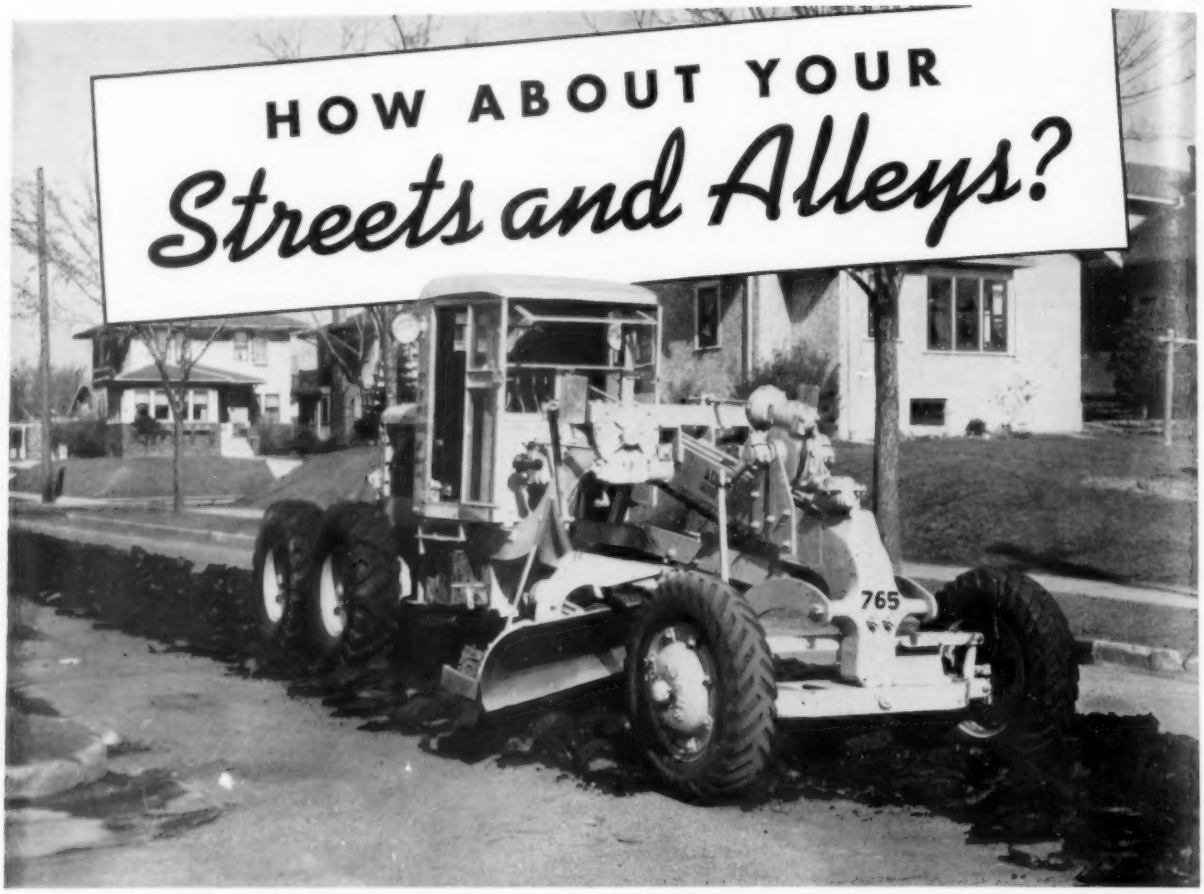
The above coupon, 2¾ x 4 inches, published in the Norwich, Conn., Bulletin of April 11, 1940, one week before the hearing on an extension of metered parking, gave everybody an opportunity to state his convictions. Of 435 who voted in the coupon, 364 voted yes and 71 voted no. A Chamber of Commerce survey of shoppers from 16 nearby communities showed 84 per cent favorable to the meters.

Beyond this comes the 1-hour area. One block north and south of Main Street, and near each end, are 2-hour areas.

From any spot in our business section there is now available short-time and long-time parking within as reasonable distance as possible, and one can drive into the district and be sure of car space.

15 minutes for a cent on this side where there are banks; 30 minutes for a cent on the other side of Shetucket Street

HOW ABOUT YOUR *Streets and Alleys?*



IF your unimproved streets and alleys are all in shipshape and you have plenty of efficient equipment to keep them that way, then just forget the above question. But—if you have in mind grading some new streets, regrading some old ones, scarifying and reshaping oiled streets, putting black-top surfaces on some others and need an efficient machine to do all this work (plus year 'round maintenance) this message is for you.

Adams offers a wide selection of motor graders from a big 66½-hp. Diesel machine, capable of the heaviest scarifying and construction work, down to small machines which any town can afford. There is an Adams dealer or representative near you who will be glad to tell you all about them. Why not get in touch with him today? If you do not know his name, mail the coupon below and we shall be glad to mail you catalogs and put you in touch with him immediately.

Upper Picture: An Adams heavy-duty motor grader tearing up an oiled surface for reworking . . . Lower Picture: Similar machine does low-cost street and alley maintenance.

☆ADAMS
MOTOR GRADERS

J. D. ADAMS COMPANY, Indianapolis, Indiana

Gentlemen: Send me the name of your local representative and catalogs describing your ☐ Heavy-Duty, ☐ Medium-Size, ☐ Small Motor Graders.

Name .....

Title .....

Address .....

6-40

Where Can Industry Flourish Best?

(Continued from page 76)

and villages to become part of larger, more effectively organized metropolitan areas. Similarly, the interdependence between the farm and the large industrial and commercial center is constantly increasing. The period of isolated cities and areas, promiscuously sprouting up in a rapidly expanding frontier, is apparently being replaced by an era of metropolitan regions in which all but a small part of urban as well as rural enterprise and population will be affiliated in some centrally organized yet dispersed form of regional pattern. Thus, the peripheral and surrounding areas of favorably situated cities, but not the central cities themselves, are today the major sites of American economic and social expansion. This leads one to the conclusion that the future of industrial location in the United States lies not in decentralization, but rather in well-planned streamlined recentralization.

Re-Wiring without Conduit Replacement

Permits Modern Lighting in Old Buildings

By EUGENE CLUTE

A SERIOUS obstacle to the better lighting of schools, libraries and other public buildings, as well as office buildings and commercial interiors generally, is the present necessity for removing existing wiring conduits that are buried in the walls and floors and replacing them with conduits capable of accommodating wiring of greater capacity. This obstacle is to be eliminated by revisions of the National Electrical Code permitting the use of wires with the new thin-wall insulation, and 50 per cent occupancy of the interior of the conduits by the conductors, instead of the maximum of 40 per cent now allowed by the Code.

These revisions were approved by the Electrical Committee of the National Fire Protection Association at a meeting in Atlantic City, December 4. After formal adoption by the sponsoring organizations, they will be included in the revised National Electrical Code, which will be in general use by autumn, 1940.

This means that wiring capable of carrying two, three or more times as much electric current can be installed in existing conduits. The old wires can be pulled out and new wires with thin-wall insulation can be pulled in. Because the thin-wall insulation occupies so much less space than the Type R insulation now called for by the Code, and because the wires will be permitted to occupy 10 per cent more of the space in the interior of the conduits, either a greater number of wires or wires of greater diameter of copper which will carry more current, can be accommodated. At the same time, the capacity of the wiring can be further increased by re-circuiting methods which make use of a common neutral for two or more circuits, thin-wall insulation being used on the neutral as well as on the phase wires.

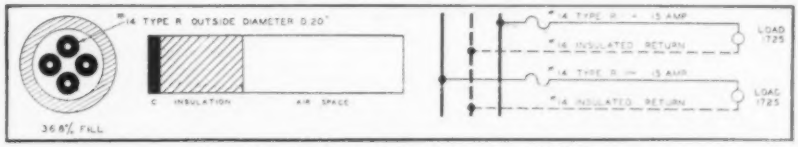
The increased capacity possible with the new thin-wall insulated wires and re-circuiting is graphically presented in the diagrams herewith.

The full significance of these revisions of the Code and of the wiring methods which they permit is evident when we consider that the "bottleneck" of inadequate wiring is the only thing that prevents adequate lighting in the vast majority of existing buildings. In an effort to secure adequate illumination, lamps of higher wattage are commonly used, with the result that the circuits are overloaded, and the lamps, operating on lower voltage than they were intended for, furnish less light than they should for the wattage which is consumed and paid for. This is wasteful. But even more light is required by present-day standards and it cannot be obtained without wiring of increased capacity.

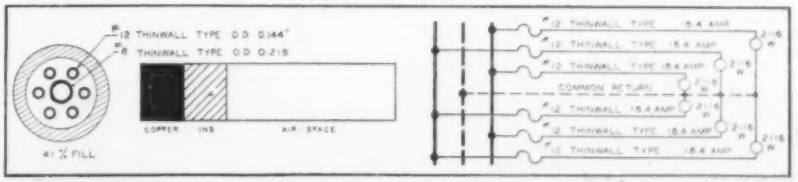
The need of more adequate illumination is felt most keenly in the public schools. It has been shown by tests that better lighting in classrooms produces worth-while results in better educational achievement on the part of the pupils, and the conservation of their eyesight. Public libraries, generally, stand in need of better lighting, and city offices in which clerical work is done should be well lighted for increased efficiency and the welfare of the personnel.

It is to be noted that these revisions of the Code will not apply to new insallations, in which the Type R insulation should be used as heretofore. This is intended to ensure sufficient conduit capacity in new work so that when increased wiring capacity is required it may be obtained by re-wiring under the revisions, thus avoiding another "bottleneck" situation in the course of five or ten years.

INCREASED CAPACITY POSSIBLE WITH NEW THIN WALL INSULATED WIRES



Former Method—2 Circuits, 4 Type R Conductors 3450 Watts



Proposed Method—Same ½-Inch Conduit Rewired gives 6 Circuits, 7 Conductors, Provides 12,096 Watts Capacity

INTERNATIONAL DIESELS

● Diesel Power reaches new peaks of efficiency in the *Four New TracTracTors by International Harvester.* Thanks to the ingenuity of Harvester engineers, a higher percentage of their maximum drawbar horsepower can be kept continuously applied to get more work done per day at the lowest possible cost!

In this complete series of DIESEL TracTracTors, you can now get International *design, quality, performance*—and International *full* DIESEL fuel economy—in sizes exactly suited to your power needs. Here's perfectly designed *balanced power* to team up with *balanced allied equipment*—to the profit of everyone.

Operator fatigue is engineered out . . . great working capacity, long life, and low maintenance are engineered in. All TracTracTor controls are within easy reach of the driver. Gear shifting is fast and easy. A wide range of traveling speeds provides close selection of speed to load and going. Multiple-disk steering clutches, mounted on ball bearings, are easy to operate. ***Exclusive*** track frame stabilizer and ball-and-socket pivot construction relieves the pivot shaft and track frames of leverage loads and assures positive track alignment.

Standardize on International Diesel TracTracTors and enjoy all the advantages only Harvester can provide. The nearby International industrial power dealer or Company branch will give you detailed information about this great line of crawlers.

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INTERNATIONAL Industrial Power

New Approach to Tax Delinquency

California Establishes Administrative Agency to Aid Public Use or Disposal of Tax-Abandoned Lands

By William G. Smith

WITH problems of tax delinquencies and land-use planning becoming increasingly acute, the California Legislature has just adopted a comprehensive plan for their solution. Based on studies and findings from a two-year investigation by the State Planning Board, this law, among other things, provides a three-member Land Classification Commission to classify all tax-deeded land in the state. The rentals from tax-deeded lands will pay the administrative expenses. The Commission works in cooperation with the State Controller and with other administrative officers.

Existing Conditions

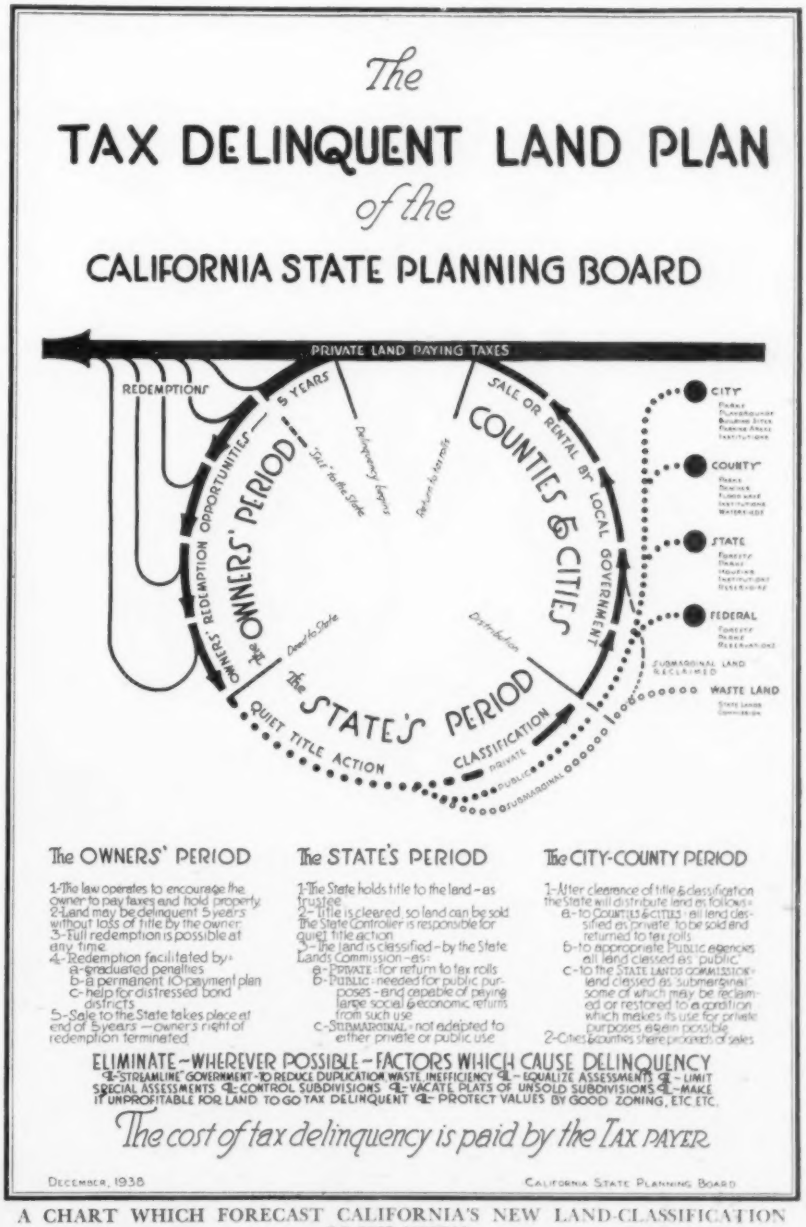
Since all properties on which taxes are not paid for over five years are deeded to the state, California gradually accumulated large holdings without adequate disposal or management machinery. In a situation not far different from that of many other states, California found much of its tax delinquencies in marginal-use lands and much in uncertain foreclosure processes. In 1938 it was learned that the state held over 300,000 deeds to real estate on which taxes had not been paid for from five to fifty years.

Much of this tax-deeded land comes from large owners who have foregone payments for one reason or another. These owners include real estate companies, banks, railroads, and lumber companies. Although they represent only 4.7 per cent of the 103,000 owners, their holdings represent 52.5 per cent of the total acreage, or 1,855,950 acres. The 3,532,951 acres which are tax-deeded represent only about 3 per cent of the entire state domain, but still they have considerable value and cover an area which is slightly larger than the area of the entire state of Connecticut.

The distribution of this land indicates that 19 counties out of the 58 in the state have approximately three-fourths of the tax-deeded land, or 2,655,088 acres. Twenty-four cities have over 1,000 lots tax-deeded to the state, but only three, San Diego with 31,895, Los Angeles with 25,307, and Fresno with 10,128, have over 5,000 lots and constitute the main urban problems.

Provisions of New Law

Lacking legal authority to clarify the situation, the Controller was


The
TAX DELINQUENT LAND PLAN
of the
CALIFORNIA STATE PLANNING BOARD
PRIVATE LAND PAYING TAXES
REDEMPTIONS
5 YEARS
SALE OR RENTAL BY LOCAL GOVERNMENT
COUNTIES & CITIES
CITY
COUNTY
STATE
FEDERAL
SUBMARGINAL LAND RECLAIMED
WASTE LAND
The OWNERS' PERIOD
OWNERS' REDEMPTION OPPORTUNITIES
Sale to the State
Delinquency Expires
Return to owners
Deed to State
Distribution
The STATE'S PERIOD
QUIET TITLE ACTION
CLASSIFICATION
PRIVATE
PUBLIC
SUBMARGINAL
The OWNERS' PERIOD
1-The law operates to encourage the owner to pay taxes and hold property
2-Land may be delinquent 5 years without loss of title by the owner
3-Full redemption is possible at any time
4-Redemption facilitated by:
a-graduated penalties
b-a permanent 10-payment plan
c-help for distressed bond districts
5-Sale to the State takes place at end of 5 years — owners right of redemption terminated
The STATE'S PERIOD
1-The State holds title to the land - as trustee
2-Title is cleared, so land can be sold. The State Controller is responsible for quiet title action
3-The land is classified - by the State Lands Commission - as:
a-PRIVATE - for return to tax rolls
b-PUBLIC - needed for public purposes - and capable of paying large social & economic returns from such use
c-SUBMARGINAL - not adapted to either private or public use
The CITY-COUNTY PERIOD
1-After clearance of title & classification the State will distribute land as follows:
a-to COUNTIES & CITIES - all land classified as private, to be sold and returned to tax rolls
b-to appropriate PUBLIC agencies all land classed as "public"
c-to the STATE LANDS COMMISSION - land classed as submarginal, some of which may be reclaimed or restored to a condition which makes its use for private purposes again possible
2-Cities & counties share in proceeds of sales
ELIMINATE - WHEREVER POSSIBLE - FACTORS WHICH CAUSE DELINQUENCY
"STREAMLINE" GOVERNMENT - TO REDUCE DUPLICATION WASTE, INEFFICIENCY - EQUALIZE ASSESSMENTS - LIMIT SPECIAL ASSESSMENTS - CONTROL SUBDIVISIONS - VACATE PLATS OF UNSOLD SUBDIVISIONS - MAKE IT UNPROFITABLE FOR LAND TO GO TAX DELINQUENT - PROTECT VALUES BY GOOD ZONING, ETC. ETC.
The cost of tax delinquency is paid by the TAX PAYER
DECEMBER, 1938
CALIFORNIA STATE PLANNING BOARD

A CHART WHICH FORECAST CALIFORNIA'S NEW LAND-CLASSIFICATION LEGISLATION

From "Tax-Delinquent Land in California," a report published in 1938 by the California State Planning Board, written by Willis H. Miller, Chief Planning Technician, and Richard S. Whitehead, State Planning Engineer, under the supervision of L. Deming Tilton, Administrative Officer

PERFORMANCE is a sales argument for cast iron pipe that speaks for itself from the records. Records of useful life bridging centuries. Records of maintenance costs that are well nigh negligible. Such is the heritage of U. S. pit cast pipe and U. S. Super-de Lavaud chill-free centrifugally cast pipe made under technical controls by processes vastly superior to those of olden times
U. S. PIPE AND FOUNDRY COMPANY • General Offices: Burlington, N
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U.S.
cast iron
PIPE

unable to cope with these problems. With the passage last month of Assembly Bill 47,* the Legislature established an administrative organization to deal with this problem in a progressive manner. The Commission formulates the policies for the Controller and decides on classification cases. The Governor appoints the Commission for an indefinite term.

The Commission classifies land into three categories: (1) suited for private ownership and to be sold for that purpose as soon as possible; (2) suited for public ownership; (3) waste land. Any public agency can request that certain parcels be classified for public ownership. The conditions which must be satisfied before it can be so classified are:

1. The agency must be willing to pay for the property, the price not to exceed the delinquent taxes on it and to be agreed upon with the Board of Supervisors.

2. It must indicate its willingness to administer the property.

3. It must indicate the purpose to which the land will be devoted.

4. No more than 5 per cent of the assessed valuation in a county may be classified as public land without consent of the Board of Supervisors.

The Commission may rent all land until it has been classified or, following classification, until its disposal. All classifications, prior to disposal, are subject to reclassification. The income from these rentals will serve to meet the administrative expenses of the Commission. Whenever waste land is found to be rehabilitated sufficiently to justify its reclassification as either private or public use land, the Commission makes this classification. This land is analyzed and suggestions for its rehabilitation are made to the appropriate public agencies. It may be rented during the rehabilitation process.

The right of redemption, which has served to cloud tax-delinquency deeds, is clearly stated. Beyond a period of five years' delinquencies, during which certain notices and warnings are issued, the right of redemption automatically ceases and the property becomes tax-deeded to the state. Adequate and liberal repayment procedures protect the delinquent holder, enabling him to redeem his property before the expiration of the five-year period.

Anticipated Results

Some of the immediate effects of this Act are obvious. The large owners who have been profiting from moratoria, from confused administration, and from the uncertain foreclosure laws of tax delinquency will have to pay or lose their land. It is expected that many of them will choose to pay their delinquent taxes rather than run the risk of losing their holdings. Furthermore, it is expected that the cities, towns, counties and other units will be able to develop much better land-utilization programs. Through their preferential power to apply for a classification of property as suited for public use, they can effectuate their plans in a much clearer manner. The tax-delinquent subdivisions can have their titles clarified and can be returned to community use, either in private or in public hands. The tremendous losses accompanying an uncertain and disorganized policy in regard to waste land should now be stopped and a rational program developed for the rehabilitation of these areas.

With this problem facing practically every state in the country, it is encouraging that California should take these steps toward the solution of these problems. The success of the California Land Classification Commission, under its new powers, should be watched with interest.

* EDITORIAL NOTE.—The California State Board reports that the Governor has signed Assembly Bill No. 47 and that it has been recorded as Chapter 47 of the Statutes of the Special Session of 1940.

Motor Highways and Property Values

THE spending of hundreds of millions of dollars to build speedways so that larger and larger numbers of automobiles may arrive more speedily at the place where they must wait longer and longer to enter a district where it is increasingly difficult for them to move about at all was declared to be a "human absurdity" by Frederick Bigger, of Pittsburgh, at the 72d convention of the American Institute of Architects:

"We must design practicable devices or valves through which we can move successfully between outer roadways of great speed and rapid time and the central district streets where light-controlled traffic pulsates slowly from each street intersection to the next intersection."

The Institute's Committee on Regional Depreciation and Enhancement, of which Mr. Bigger is Chairman, in a report to the convention said that the nation's architects must appreciate the fundamental significance of these facts:

Modern motor highways facilitate the shifting of population with concurrent shifting of property valuation from one locality to another. This creates instability and uncertainty in the tax base from which revenues for public improvement must be secured.

The mere beautification of any highway, be it on the surface or elevated, is not a substitute for the proper placement of that highway in relation to the regional pattern and its specifically correct functional design.

Plans for "salvaging the depreciated areas of urban regions," described as one of the most important problems before the country, were announced at the convention. The Institute will cooperate with other national and local organizations in the study of the causes and conditions of depreciation and blight, and of possible means of encouraging rehabilitation and stabilization.

The architects will work with money-lending and fiduciary agencies, insurance companies, the legal profession, local governments and real estate owners and managers.

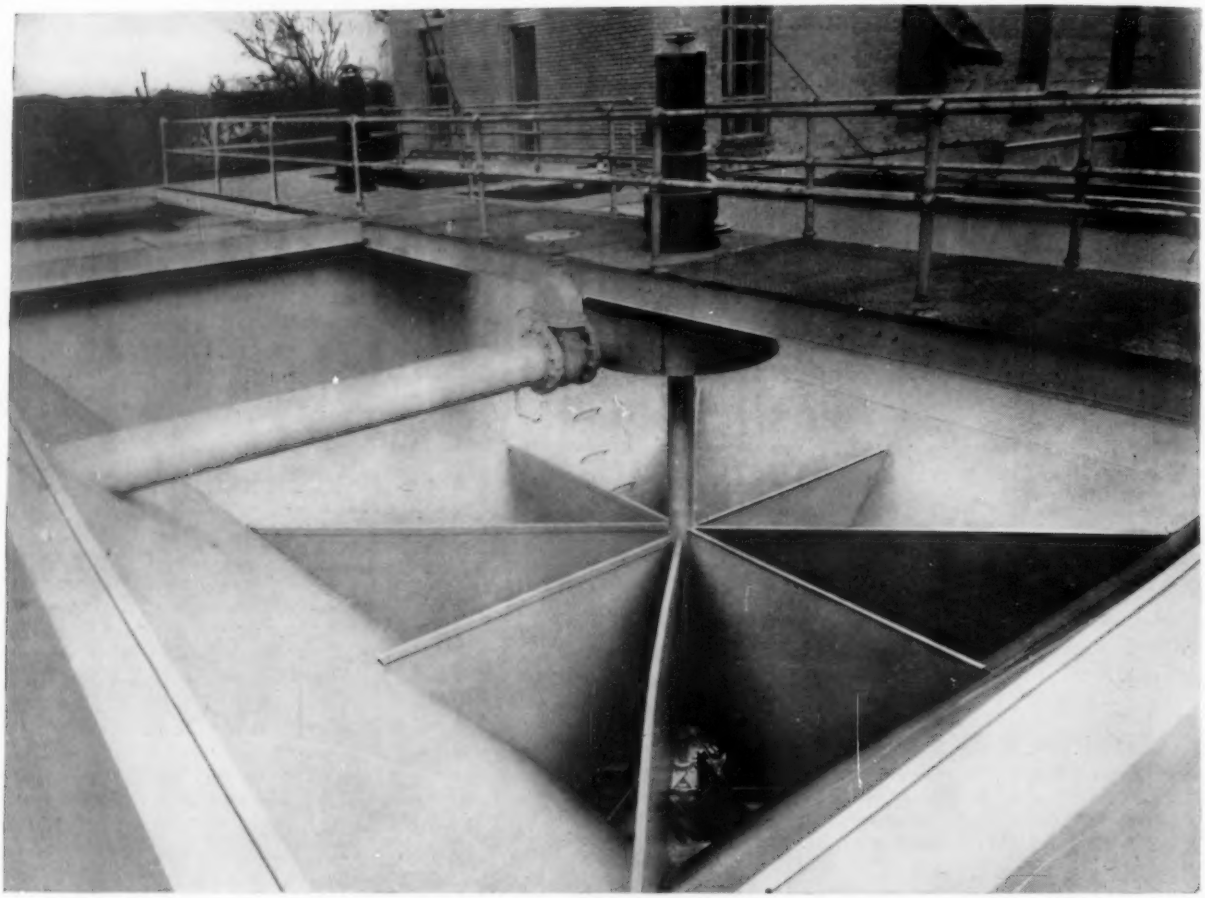
"There is nothing so significant, particularly with respect to communities of the future, as the study of the neighborhoods that compose the communities and their influences on them," said a statement of the Institute's Board of Directors.

"The Committee on Regional Depreciation and Enhancement is directing the attention of architects to the effects that plans and designs of individual buildings may have on the neighborhoods in which the buildings are located, and, conversely, the effect that use and occupancy of the buildings of the neighborhoods may have on the values of the individual buildings and the community. It is directing the viewpoint of architects to a larger horizon and a greater field of service."

Permutit Spaulding Precipitator

Increases capacity of water softening plant for Illinois City*

*Name on request.



View showing how existing concrete settling basins were converted into Spaulding Precipitators. Capacity increased to 3 million gallons per day.

New Design Cold Lime Treatment Solves Increased Demand

Since this progressive city has been softening its water supply, many new users have signed up. Among them was a large industry needing a maximum of one million gallons a day. But where to find the extra capacity necessary to handle this increased load?

The problem was solved by converting the existing concrete settling basins into Spaulding Precipitators, which, because of their shorter settling period substantially increased the capacity of the plant. The ease with which the Precipitator was adapted to fit these oblong basins demonstrates the flexibility of the basic design.

Have you an unusual water conditioning problem? Let the world's largest makers of water conditioning equipment lend a hand. Permutit's coast-to-coast staff of field engineers is glad to cooperate with architects, engineers and municipal officials. For free booklets address The Permutit Company, Dept. G3, 330 West 42nd St., New York.

PERMUTIT WATER CONDITIONING HEADQUARTERS

Water Rates and Service Charges

1940—Part VI

Covering Domestic and Industrial Meter Rates, Discounts and Penalties, Installation Charges, Fire Hydrant Rentals and Fire Sprinkler Costs

Dyersburg, Tenn.

Present population	10,000
Population served	10,000
Number of active services	2,300
" " meters	2,300
" " hydrants	170
Miles of water main	35

The first 2,250 gallons of water used monthly are included in the minimum charge, which is based on the size of the meter. Beyond the minimum monthly volume of water allowed, the rates are:

Next 30,000 gals.	$ .30 per 1,000 gals.
" 50,000 "	.25 " " "
" 100,000 "	.20 " " "
" 250,000 "	.15 " " "
All additional gallons	.10 " " "

The minimum charge, when only one house is being supplied by a meter, varies according to the size of the meter as follows:

5/8" meter	$1.00 per month
1" "	2.00 " "
1¼" "	3.00 " "
1½" "	3.50 " "
2" "	5.50 " "
3" "	10.50 " "
4" "	15.50 " "
6" "	30.50 " "

When additional houses are supplied by a single meter, there is an allowance of 1,500 gals. per house per month, and if all houses are owned by the same person, the additional cost is 50c per house per month. When houses of other persons are supplied, the additional charge is $1.00 per house per month.

All water services are installed by plumbers who have received permits from the Water Department. There is no charge for either public or private fire hydrants, nor for installations of sprinkler heads for private fire protection.

S. R. Blakeman,
Superintendent, Water Department.

St. Johnsbury, Vt.

Present population	7,920
Population served	7,975
Number of active services	1,279
" " meters	21
" " hydrants	159
Miles of water main	67

Meter rates in St. Johnsbury are used chiefly for industries, while a flat rate is used for private residences, offices, stores and shops, churches, schools and institutions, livery stables, hotels, boarding houses and tenement houses. Meters are installed in hotels, churches, schools, garages, laundries and bakeries if desired. The meter rates are:

First 50,000 gals.	$ .20 per 1,000 gals.
Second 50,000 "	.16 " " "
Excess over 100,000 "	.10 " " "

The minimum charge for a connection to the water main is $5.00, the services being run by the Water Department from the main to the property at the expense of the Department.

Public fire hydrants are billed at $30 each per year, while the charges for sprinkler systems for private fire connections are $25 per year per installation.

E. J. Gagetta,
Superintendent, Water Department.

Mt. Kisco, N. Y.

Present population	5,200
Population served	5,300
Number of active services	1,300
" " meters	1,300
" " hydrants	200
Miles of water main	45

All water meters in Mt. Kisco are read quarterly and bills are due 60 days after the bill is rendered. Thereafter 5% penalty is added for a period of 5 days. If the account remains unpaid after this period, service is discontinued. The water rates for water measured by the meter are:

First 10,000 cu. ft.	$3.60 per 1,000 cu. ft
Next 90,000 " "	3.00 " " " "
Over 100,000 " "	2.40 " " " "

In addition to these rates, the following service charges are made, regardless of whether the service is used or not:

5/8" meter	$1.50 per quarter
¾" "	2.50 " "
1" "	4.00 " "
1½" "	7.50 " "
2" "	12.50 " "
3" "	20.00 " "
4" "	38.00 " "
6" "	75.00 " "

All consumers connected to the village mains outside the corporate limits of the village are charged 25% more than the above rates.

All services are run from the main to the foundation of the building on the property by the Water Department and paid for by the consumer on a footage basis. The meter is installed by the Water Department and paid for by the consumer and remains his property.

A charge equaling $65 per hydrant per year is made to the village by the Water Department for all public fire hydrants connected to the Water Department mains. This charge consists of $15 per year per hydrant plus 1½c per inch foot of mains, which makes a total of $65 per hydrant. There are no charges for sprinkler heads installed for private fire protection.

F. R. Mathews,
Superintendent, Water Department.

East Bay Municipal Utility District, Calif.

Present population	542,400
Population served	542,400
Number of active services	142,024
" " meters	145,131
" " hydrants	6,059
Miles of water main	1646.67

The East Bay Municipal Utility District comprises the cities of Oakland, Berkeley, Alameda, Richmond, Piedmont, Albany, San Leandro, Emeryville, El Cerrito, Castro Valley, Lafayette, Kensington, San Pablo, Fairview, Saranap, Chabot, Colonial, Orinda, Ashland and Mulford Gardens and Rodeo. Water is furnished to consumers within these cities and also for consumers outside the District, for which a different rate is charged. The general water consumption rates within District boundaries are:

First 3,300 cu. ft. per month	$ .23 per 100 cu. ft
Next 30,000 " " "	.21 " " " "
" 300,000 " " "	.19 " " " "
Over333,300 " " "	.16 " " " "

Where the monthly consumption is in excess of 6,000,000 cu. ft., the rate is $.141 per 100 cu. ft. for all water consumed during the month. There is a monthly standby charge for domestic, commercial and industrial services, depending on the size of the meter, as follows:

5/8" meter	$ .50
¾" "	1.10
1" "	1.65
1½" "	2.75
2" "	4.95
3" "	8.80
4" "	13.75
6" "	27.50
8" "	44.00
10" "	62.70
12" "	84.70

The charges for water delivered to consumers outside the District boundaries are:

THE OLD SWIMMIN' HOLE . . .
It ain't what it used to be

But a new trend toward better sanitation standards, in which Solvay Liquid Chlorine plays an important role, is fast solving sewage disposal problems

Strange to say, "the old swimmin' hole" is becoming a new national problem—a problem in sanitation brought about by the disposing of sewage and industrial wastes in streams feeding into rivers and bays.

As a solution to this problem, many communities have already built sewage disposal plants. Some of these plants utilize chlorination as a step in the process of sewage disposal, which automatically controls bacteria load. Other plants, however, chlorinate only during summer months. Still others rely on methods which simply precipitate solids, permitting contaminated effluent to flow off into rivers and streams.

The danger zone is downstream. But the danger zone becomes a safety zone when Solvay Liquid Chlorine is used to make doubly certain that *all* effluent is *completely* purified before it is sent from the plant.

Many of America's largest municipalities and leading manufacturers have long used Solvay Liquid Chlorine. They are constant users because of the outstandingly high quality symbolized by the Solvay Anchor Trademark . . . and because of service facilities Solvay is in a position to provide. These include sound technical advice by men who are fully conversant with the day-to-day problems of sanitation and water supply. There is also the important fact that Solvay is in a position to supply sudden demands for liquid chlorine in times of emergency. Your inquiries are cordially solicited.

Member American Water Works Association

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Why not remember to mention THE AMERICAN CITY?

First	3,300 cu. ft. per mo.	$ .40	per 100 cu. ft.
Next	30,000 " " "	.24	" " " "
"	300,000 " " "	.19	" " " "
Over	333,300 " " "	.16	" " " "

The same stipulation regarding consumption in excess of 6,000,000 cu. ft. per month within the District boundaries applies outside.

Meters are read once each month, as close to the same day as possible. In general, only one meter is installed on a consumer's premises. If, however, more than one meter is required for service, the readings are not combined for the purpose of making charges, except where the additional equipment is required as an operating necessity by the District.

Bills for metered water are payable on receipt. If a bill is not paid within 15 days after receipt by the consumer, service is subject to discontinuance. At that time a second bill is sent to the consumer with a notice stating that the bill is unpaid and that 5 more days will be granted in which to make the payment. If the bill is not paid by the end of the 5-day period, the service is subject to discontinuance.

All meters and appliances are installed by the District at its expense upon the consumer's premises, and continue to be the property of the District. They may be repaired, replaced or removed by the District at any time without the consent of the consumer.

The consumer must make application for service connection on a special blank provided for that purpose at any one of the offices of the East Bay Municipal Utility District. The application contains space for a notation of the exact location of the tap and also a space for application for water service, in addition to the connection. Upon receipt of a bona fide application for water service, within its boundaries, the District furnishes and installs, at its own expense, the service pipe and pertinent equipment to and including the meter, provided that the desired location of the service is on a public street, highway, alley, lane or road in which the District already has installed, or will install, a water main. Where practicable, the meter is placed in the area between the curb and the property line, but if this area is not available for such use, the meter is placed on the consumer's premises, at some convenient location approved by the District. The consumer must install, at his own expense, the portion of the water system on his property that lies on his side of the meter outlet, and such portion of the water system at all times remains the sole property of the consumer, who is responsible for its maintenance and repair.

A consumer may, on request, secure a test of the accuracy of the meter serving his premises. A deposit to cover the reasonable cost of the test is required of the consumer as follows:

Size of Meter	Amount of Deposit
1" or less	$1.00
Over 1"	2.50

The consumer is notified of the time and place of the test and may be present to witness it if he so desires. The amount which he has deposited is returned to the consumer if the meter is found, upon test, to register more than 2% fast under conditions of normal operation. Otherwise the deposit is retained by the District. In case the meter is found to register more than 2% in excess of the actual quantity of water passing through it, another meter is substituted for it, and the District refunds to the consumer the overcharge, based on the corrected meter reading for the period in which the meter was in use, not exceeding six months, unless it can be shown that the error was due to some definite cause, in which case the overcharge is computed back to and not beyond the date of the apparent cause.

The installation charges and deposits required for temporary services installed within District boundaries, and the charges for services installed outside the District boundaries are as follows:

	⅝" & ¾"	1"	1½"	2"
New service	$12	$16	$37	$43
Branch service	4	5	10	15
Meter set in old service	2	3	4	5

A reconnection charge of $1.00 is made and collected by the District before service is renewed, where service has been discontinued for non-payment of bills or to protect the District against fraud, or because of failure of the consumer to comply with the rules of the District.

There is no charge for public fire hydrants within the District boundaries. The monthly standby charge for private fire services, depending on the size of the meter, is as follows:

4" meter	4.00
6" "	6.00
8" "	8.00
10"	10.00

There is no charge for water used through private fire services in extinguishing accidental fires, but any water lost through leakage, or used in violation of the District's rules and regulations, must be paid for at double the rate for general use.

J. S. Longwell,
Chief Engineer and General Manager,
East Bay Municipal Utility District.

Galveston, Texas

Present population	60,000
Population served	60,000
Number of active services	13,000
" " meters	12,671
" " hydrants	1,400
Miles of water main	115

All water furnished for domestic and commercial consumption other than water furnished to ships is billed as follows per month:

First 125 cu. ft. or fraction thereof	$ .30	
Next 10,000 cu. ft.	.20	per 100 cu. ft.
All over 10,125 cu. ft.	.14	" " " "

For water furnished to ships and other water craft, the charge is $.30 for each 130 cu. ft. or fraction thereof, and when such water is not furnished through a permanently installed meter, there is an additional charge of $2.50 for each serving of any such ship or water craft.

The minimum monthly service to regular consumers through meters is based on the size of the meter as follows:

⅝" meter	$ .50 per month
1" "	2.00 " "
1½" "	4.00 " "
2" "	8.00 " "
3" "	16.00 " "
4" "	32.00 " "
6" "	64.00 " "

The minimum monthly charges apply to all classes of services and to all connected meters.

The owner or agent of the property to be supplied must sign the water application at the water-works office, as no verbal applications from plumbers are accepted.

Water Taps	
⅝"	$11.00
¾"	14.00
1"	18.00
1½"	30.00
2"	40.00
3"	80.00

A charge is made for fire protection, based on the area protected. The charge is $.60 for each 1,000 ft., or fraction thereof, of the area protected by sprinkler systems.

R. W. Owens,
Superintendent, Water Works.

Pendleton, Ore.

Present population	8,000
Population served	6,400
Number of active services	2,300
" " meters	2,300
" " hydrants	140
Miles of water main	75

The domestic water rates in Pendleton, Ore., carry a minimum monthly charge of $1.00, which permits the use of 3,500 gals. of water. If the bill is paid by the 5th of the month, the charge is only 65c. Schools and hospitals pay 7½c per 1,000 gals.; mills, laundries and cold storage plants pay 12c per 1,000 gals. for the first 100,000 gals. and then 10c per 1,000 gals. for all water over that amount. The minimum monthly charge for this latter class is $12.00 per month.

Applicants for water service must sign a special contract at the office of the Water Commission, agreeing to pay all charges. There is no charge for the installation of water services, as all tapping and connections and pipe are furnished by the Commission.

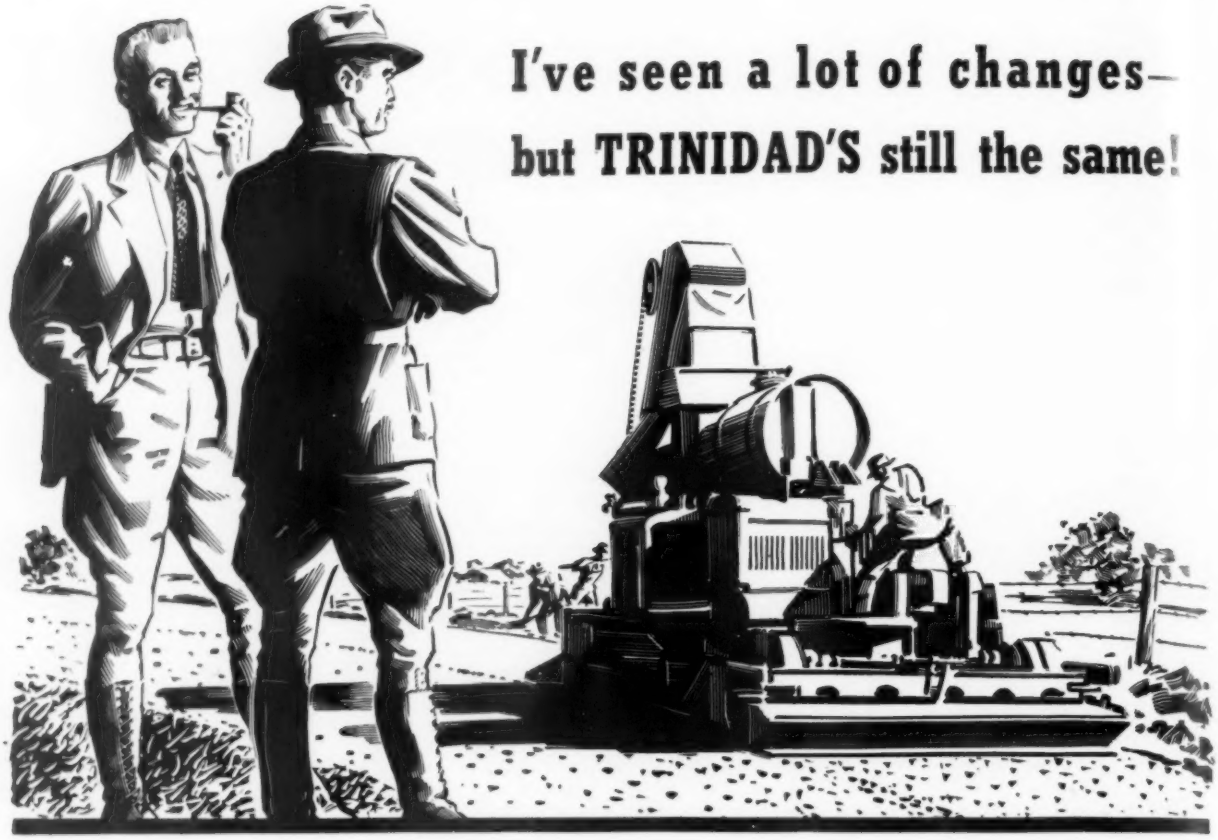
There is no charge for hydrant rentals, either public or private, for fire purposes, or for sprinkler heads installed for private fire protection.

J. L. Vaughan,
Superintendent, Water Commissioner.

West Orange, N. J.

Present population	32,200
Population served	32,200
Number of active services	5,324
" " meters	5,324
" " hydrants	584
Miles of water main	79

West Orange, N. J., is served by the Commonwealth Water Co., which also serves the cities of Summit and Irvington, although the statistics for these two communities are not included in this report. Because of the character of the community, service is divided into low and high service, with different mini-



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• You modern paving men would laugh if you could see the equipment I used when I started in this business. It would look pretty funny beside the big machinery you've got today.

But I had one thing you have — Trinidad Native Lake Asphalt. And it's just the same now as it was forty years ago. You see, nature formed that asphalt some two or three million years ago, right down there in Trinidad where it's hot as blazes three hundred and sixty-five days a year. But has the asphalt dried up, gotten hard and brittle? Not a bit of it.

You can look far and wide but you won't find any asphalt that's as truly uniform as Trinidad, year-in, year-out. You won't find the same mineral filler in any other asphalt marketed commercially. And its balance between adhesion and cohesion is hard to beat.

But don't take my word for it. Look at the roads that have been laid down with Trinidad twenty, thirty, forty years. A lot of them are still in first-class condition, giving good service, at a real low cost per square yard per year. That's the kind of proof I like. That's why I say — use Trinidad every time.

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☐ *Barber Block and Joint Filler*

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TRINIDAD NATIVE LAKE ASPHALT

Quarterly Rates—Low-Level Districts—Irvington, Maplewood, Millburn, New Providence, Springfield, Summit, West Orange

Size Meter	⅝"	¾"	1"	1½"	2"	3"	4"	6"
Minimum per quarter	$1.20	$1.80	$4.20	$10.80	$14.40	$36.00	$54.00	$99.00
Cu. ft. allowed for minimum	200	300	700	1,800	2,400	6,000	9,000	16,500
22½c per 100 for next	9,800	9,700	9,300	8,200	7,600	4,000	1,000	....
17c per 100 for next	90,000	90,000	90,000	90,000	90,000	90,000	90,000	83,500

12½c per 100 for next 900,000 on any size meter. 9c per 100 for over 1,000,000 on any size meter.

Quarterly Rates—High-Level Districts Maplewood, Millburn, West Orange

Size Meter	⅝"	¾"	1"	1½"	2"	3"	4"	6"
Minimum per quarter	$1.25	$1.87	$4.37	$11.00	$15.00	$35.62	$55.00	$100.00
Cu. ft. allowed for minimum	200	300	700	1,760	2,400	5,700	8,800	16,000
30c per 100 for next	9,800	9,700	9,300	8,240	7,600	4,300	1,200	....
23c per 100 for next	90,000	90,000	90,000	90,000	90,000	90,000	90,000	84,000

19c per 100 for next 900,000 on any size meter. 17c per 100 for over 1,000,000 on any size meter.

mum charges and rates for water consumed.

Bills for metered service are rendered monthly or quarterly, depending on the volume of water used.

The company furnishes and installs without charge a meter of the proper size for each customer, and keeps it in repair except in case of misuse or damage by frost, hot water or external causes, in which case the expense of repair must be borne by the customer. The company makes a charge for meter replacement when made necessary by damages, in addition to the cost of repairs, of $1.00 for meters of 1" in size and smaller, and $2.00 per inch in size for meters larger than 1" to cover the cost of removal and replacement. This charge also includes testing the repaired meter. Further, the company makes a test of the accuracy of any meter upon request of a customer, without charge, providing the customer does not make a request for a test more frequently than once a year.

Written application for a service connection must be made at the company's office. Upon receipt of the application, the company installs a service connection and service lines from the main to the curb, together with a curb cock and curb box at its expense. Whenever a service line is desired in advance of street paving or for any other purpose through which regular service is not immediately required, then the company makes the installation upon receipt of a deposit of the estimated cost under a contract or agreement to refund the deposit without interest when the service line is placed in active use.

Each municipality served by the company pays a hydrant charge of $2.50 per quarter for each public hydrant in service. The charge is based on the number of hydrants in service on the first day of each quarter and is prorated for shorter periods when necessary.

The rates for private fire service are $25 per quarter for each 4" private fire-service meter, and $50 per quarter for each 6" private fire-service meter. In case some detector device other than a meter covering the full flow of water is used, then the charge for the service is based on the size of the service connection. No additional charge is made for sprinkler heads, fire hydrants or other fire-fighting facilities, which may be attached to a private fire-service connection.

These rates, however, cover service connections used exclusively for extinguishing fires, and if the customer desires to use water for general and industrial purposes through the same connections, or if any private fire service connection is used for unauthorized purposes, then the regular schedule of rates is applied.

Each municipality served by the Commonwealth Water Co. pays for each quarter-year an inch-foot charge of $0.0018 per inch diameter per foot length of distribution and transmission mains serving the municipality, on the first day of each quarter. Distribution mains, 4" to 8" in diameter, located within the boundaries of each municipality, are considered as serving and chargeable to that municipality at the inch-foot rate. No main less than 6" in diameter installed after September 30, 1917, is considered as a distribution main. All transmission mains 10" in diameter or larger are considered as servicing the municipalities to which they supply water and are charged at the inch-foot rate.

P. H. GLANNAN,
Superintendent, Commonwealth Water Co., West Orange, N. J.

Torrington, Conn.

Present population	26,000
Population served	23,000
Number of active services	4,144
" " meters	362
" " hydrants	256
Miles of water main	53

The quarterly charges for metered service for water supplied by the Torrington Water Co., are as follows:

First	2,000 cu. ft. per quarter	$ .24 per 100 cu. ft.
Next	3,000 " " "	.17 " " " "
"	25,000 " " "	.10 " " " "
"	120,000 " " "	.08 " " " "
All over	150,000 cu. ft. per quar.	.06 " " " "

A fixed service charge for which no water is provided, but which does include the setting and disconnecting of the meter, is made in accordance with the size of the meter as follows:

⅝" meters	$1.50
¾" "	2.50
1" "	6.50
1¼" "	11.00
1½" "	13.50
2" "	18.00
3" "	30.00
4" "	50.00
6" "	100.00
8" "	125.00

Flat-rate bills for dwellings are payable semi-annually on January 1 and July 1 of each year, in advance. Meter bills are payable quarterly and carry the warning that if they are not paid within 15 days the supply may be shut off without further notice.

The water company furnishes and installs a corporation cock upon written application of a prospective consumer. Service is then installed by a plumber.

Private hydrants for fire protection are billed at $20 each per year, and public fire hydrants with a 4" connection or smaller at $25 a year, and 6" hydrants at $10 per year plus an inch-foot charge of $.0032. Sprinkler heads on private fire lines for fire protection are billed at 5c each per year.

A. M. LAWTON,
Clerk, Torrington Water Co.

Auburn, Ind.

Present population	5,100
Population served	5,100
Number of active services	1,577
" " meters	1,577
" " hydrants	158
Miles of water main	21

The schedule of meter rates for water used in Auburn is as follows:

First	5,000 gals.	$ .225
Second	5,000 "	.18
Third	5,000 "	.135
Next	15,000 "	.108
"	170,000 "	.09
"	200,000 "	.06
All over	400,000 "	.04

The minimum charge per month is based on the size of the meter as follows:

⅝" and ¾" meters	$ .75
1" meters	1.50
1½" "	3.00
2" "	4.50
3" "	7.50
4" "	18.00
6" "	30.00

A service is discontinued and disconnected whenever a consumer is delinquent in the payment of his water bill for a period of 60 days. The resolution requires that the Department adhere strictly to the terms of the resolution, and no official or employee of the Department has any authority to extend credit to any consumer.

The Water Department calibrates all meters before installation. If a customer questions the accuracy of the meter, the Department makes a test of the meter at its workshop, and if the test establishes an accuracy within 2% the customer is required to pay $1.00 to cover the expense of the test. Customers are required to protect the water meters, which are owned by the Department, against damage from freezing and hot water. All repairs, except those due to natural wear, must be paid for by the consumer. Thawing of frozen services and repairing damages to inside plumbing due to freezing or other causes is the responsibility of the owner. The Water Department is not permitted to render this service and recommends calling a plumber. In case it is necessary for the Water Department to furnish electrical thawing service, the owner is charged accordingly, but this service is supplied only in emergencies.

Application for a new water service must be made at the office of the Water Department. The Department makes the tap and installs copper pipe to a point approximately 18" beyond the curb cock

WHY TWO "*part-time*" office machines when THIS ONE "*full-timer*" will do?

Many a businessman, faced with rising costs and slimmer profits, casts a hostile eye on his calculating machine that sees action an hour or two a day . . . on his listing-adding machine that serves him "part-time" as well. Does he need the advantages of both machines? Yes . . Does their use justify their cost? No . . . But now comes Remington Rand's new Printing Calculator. It combines, in one compact mechanism, the best features of adding machine and calculating machine—at little more than adding machine cost.

The minute you make the Printing Calculator standard equipment on all your office figuring, you promptly score on several important counts. You replace two machines with one. You eliminate costly investment in machines that lie idle some of each day. You put your figure-work on the same production basis that makes your *business* profitable.

The Printing Calculator adds and subtracts. It multiplies. It divides automatically. No matter what problem you give it, the Printing Calculator always tells the truth, printing in permanent form every factor of every calculation. Gone is the need to verify the work. Gone is all chance for error in copying results from dials. The Printing Calculator has no dials. It has no movable carriage. It makes correct decimal selection practically automatic. It requires no specially trained operators. Its compact 10-key keyboard can be instantly mastered by anyone. Plugged into any electrical outlet, it is ready to go to work on payroll and order extending, interest computing, expense prorating, inventory, costing . . . and all other figure-work. The limit of its profitable uses has yet to be reached.

Every profit-minded executive should know how the Printing Calculator operates—how successfully it can be applied to all office figuring. By all means, see it demonstrated today at your nearest Remington Rand office. If this is not convenient, simply address a request, on your business letterhead, for the illustrated Printing Calculator brochure, to Dept. 96, Remington Rand Inc., Buffalo, New York. In Canada, write to Remington Rand Limited, Toronto.

The Remington Rand
Printing Calculator

Why not remember to mention THE AMERICAN CITY?

in a shut-off box. A prepaid charge of $12 is made to the customer for the installation of the service line. Before a meter is installed, an advance payment deposit is required. This deposit is required to be not less than $3.50 for 5/8" and 3/4" meters, and for all other sizes 1½ times the minimum bill for a quarter-year.

Fire hydrants are billed at $30 each per year. There is no special charge for private fire connections or sprinkler service, since all these services are metered and carry the regular meter rates.

C. H. Romeiser,
Superintendent, Auburn, Ind.,
Water Department.

Rome, N. Y.

Present population	33,000
Population served	33,000
Number of active services	5,800
" " meters	200
" " hydrants	571
Miles of water main	100

All domestic services in Rome are on flat rates. The 200 meters are on commercial services only. The meter rates, for which there is a minimum charge of $1.54 per quarter, are as follows:

1,000 to 7,000 gals.	$ .22	per 1,000 gals.
7,000 " 20,000 "	.20	" " "
20,000 " 30,000 "	.18	" " "
30,000 " 40,000 "	.16	" " "
40,000 " 50,000 "	.14	" " "
50,000 " 100,000 "	.12	" " "
100,000 " 300,000 "	.10	" " "
300,000 " 500,000 "	.08	" " "
500,000 " 700,000 "	.06	" " "
All over 700,000 "	.04	" " "

When water rentals or meter bills remain unpaid at the expiration of 4 months after the beginning of the semi-annual period, the water supply may be shut off from the premises or property in arrears. All amounts due for metered or estimated quantities of water for the preceding quarter are due on the first day of January, April, July and October, at the City Treasurer's office. For one month after such amounts are due, no fee is added for collection, but 5% is added the second month after the bills are due, and after that the water may be cut off from the premises.

Property owners desiring to have water mains laid in streets abutting their property must present petition to the Commissioner of Public Works, giving the name of the street, the number and nature of fixtures that are to be used in the building, and the revenue which would be due the Commission from these fixtures. The cost of laying water mains is based on a cost of $2.00 per running foot. The annual water rental must equal 6% interest based on the cost of constructing the mains, otherwise the difference will have to be paid by the petitioners.

There is a charge of $1.00 for both turning on and turning off the water, either at the request of the consumer or when a service is shut off because of delinquency in payments.

No charge is made for the installation and maintenance of fire hydrants for public use, nor for private fire lines with sprinkler heads for fire protection.

C. E. Rosenburgh,
Clerk, Rome, N. Y., Water Department.

Uxbridge, Mass.

Present population	6,800
Population served	7,670
Number of active services	932
" " meters	929
" " hydrants	201
Miles of water main	18 53

The rules and regulations of the Uxbridge Water Department state that when the quantity of water is measured by meter, charge for water will be at the rate of $.30 per 1,000 gals., provided that no charge for metered water is less than $2.50 per quarter, or $10.00 per year. When the consumption of water is 120,000 cu. ft. or less during a 90-day period, the maximum rate is charged. All water used in excess of 120,000 cu. ft. in a 90-day period is subject to a 30% discount. All bills must be paid within 30 days after presentation, or water may be shut off without further notice. After all differences are adjusted, the water may be turned on again, for which a charge of $1.00 is made.

All applications for water must be made to the Board of Water Commissioners, or their agent, on a form prescribed and stating fully the various uses to which the water is to be applied, and signed by the owner of the premises or his authorized agent. No connection is made to the street main until the applicant guarantees the minimum rates paid for at least one year.

There is no charge for public fire hydrants. The construction and location of private fire hydrants is subject to the approval of the Board of Water Commissioners, and no charge is made for hydrants used for fire purposes only. All sprinkler heads on unmetered services are charged at the rate of $.08 per head per year.

J. O. Rawson,
Superintendent, Uxbridge, Mass.,
Water Department.

Pittsfield, Mass.

Present population	50,000
Population served	50,000
Number of active services	9,200
" " meters	630
" " hydrants	885
Miles of water main	158

Bills for water used in Pittsfield are rendered quarterly at the following rates:

		Per 100 Cu. Ft.
First	5,000 cu. ft. or any part thereof	$ .12
Next	10,000 " " " " "	.09
All over	15,000 " " " " "	.06

All water bills for metered services are payable quarterly on the first day of January, April, July and October. All charges for specific supplies or for fractional parts of a term are payable in advance and before water is turned on. A discount of 20% is allowed on all water rates if paid in 10 days from the time they become due. In case rates remain unpaid for one month after they become due, the water to the premises thus delinquent is shut off and not turned on again until all arrears have been paid, together with the sum of $2.00 additional for shutting off and turning on the water.

A deposit of $45 is required with each application for water service. As soon as the application is signed, the city installs the entire service, the cost of which for both labor and material is charged to the owner.

No charge is made for public fire hydrants nor for sprinkler heads nor private fire protection.

C. W. Beladeau,
Superintendent, Water Works.

Tupelo, Miss.

Present population	7,000
Population served	7,500
Number of active services	1,175
" " meters	1,200
" " hydrants	140
Miles of water main	15

The minimum water rate is $1.25 per month with certain exceptions listed below, and then the meter rates are:

Next 4,375 cu. ft per mo. at	$1 50	per 1,000 cu. ft
" 2,500 " " " "	1 25	" " "
" 17,500 " " " "	1 00	" " "
Balance	.75	" " "

The special minimums for monthly service are: One tenant receives 625 cu. ft. per month at the $2.00 per 1,000 minimum rate or for $1.25. Apartment houses and business buildings receive 625 cu. ft. per month for the first tenant, and 312½ cu. ft. for each additional tenant, at the $2.00 per 1,000 cu. ft. rate. Office buildings and Negro cabins receive the first 625 cu. ft. per month for the first tenant, and 156¼ cu. ft. for each additional tenant, at the $2.00 per 1,000 cu. ft. minimum rate.

A charge of $12.50 is made for the installation of a water service. No annual or service charge is made for public or private fire hydrants, nor is there any charge for sprinkler heads for private fire protection.

A. J. Eubank,
Manager, Light & Water Department.

Middleboro, Mass.

Present population	8,900
Population served	5,470
Number of active services	1,373
" " meters	1,345
" " hydrants	206
Miles of water main	27 46

The schedule of water rates for Middleboro carries a minimum rate of $8.00 per year, for which 4,200 cu. ft. of water may be used without further charge by the consumer. The regular rates are:

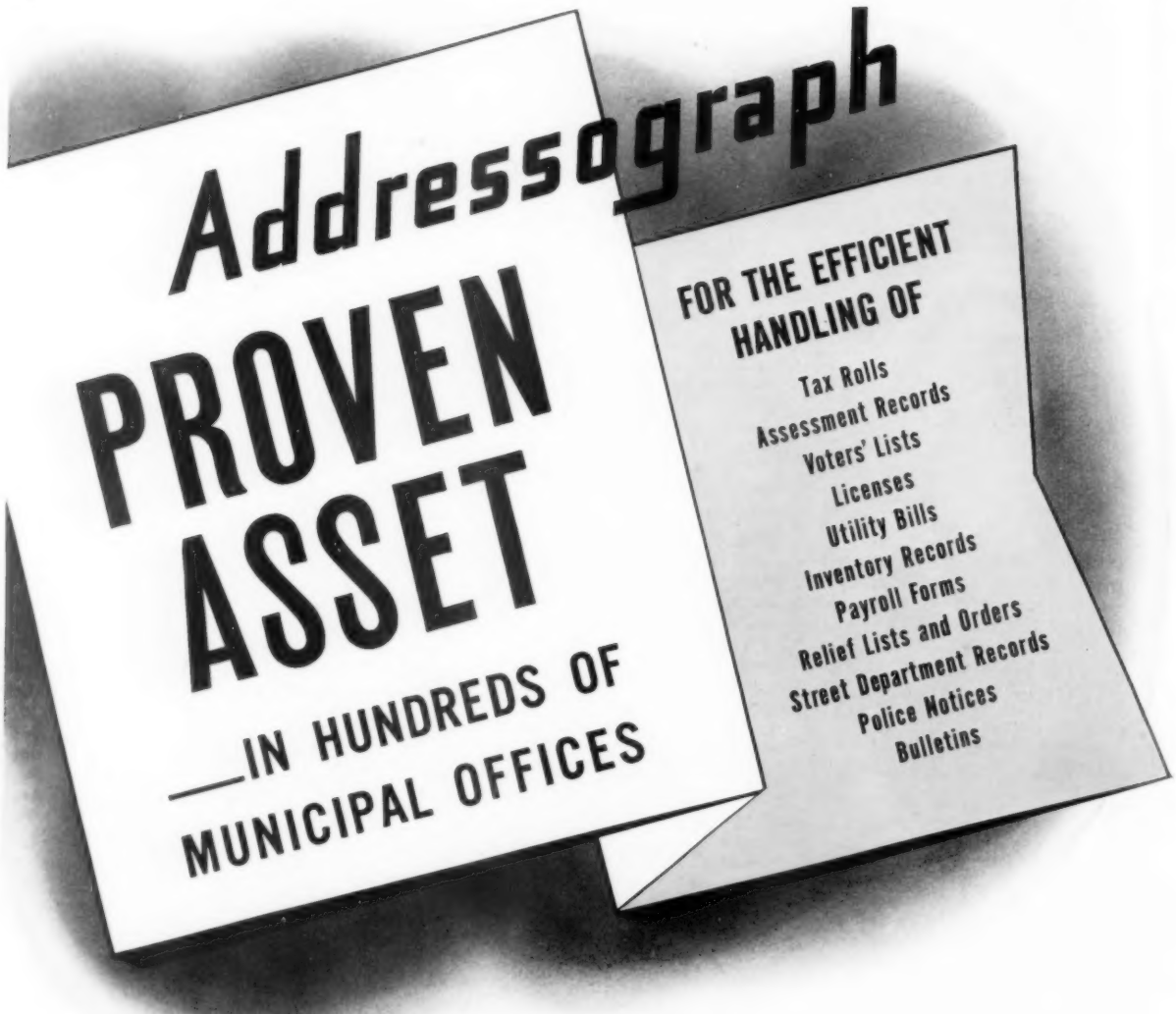
First 120,000 cu. ft.	$ .19	per 100 cu. ft
Next 120,000 " "	.17	" " "
" 360,000 " "	.15	" " "
" 600,000 " "	.14	" " "
" 1,200,000 " "	.12	" " "
" 3,000,000 " "	.10	" " "

Upon application for a water service, the Water Department makes the installation from the main, including the tap, to the property line at cost. The applicant must have a plumber complete the line into the building.

A charge of $10 is made to the city for each fire hydrant connected to the water lines. No charge is made for sprinkler heads for private fire protection.

E. C. Peterson,
Town Manager.

(To be continued in the July issue)



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Forward Steps

Reported by Municipal Officials, Chamber of Commerce Executives, and Others

Uncontrolled and Controlled Subdivision

SAN DIEGO, CALIF.—The earliest subdivision activity of major importance that we have record of in San Diego County occurred in the year 1887, when approximately 19,000 lots were subdivided and placed on the market for sale. The following periods of activity in subdividing, although not as great in quantity, occurred from 1910 to 1914 and again from 1926 to 1928.

Most of the earlier subdivisions were laid out with the intention and purpose of creating a townsite with a large percentage of the area in business lots. The location of a few of these subdivisions, we find, is along the coastal region, and the lots extended to mean high-tide line. These lots are not usable, because the greater part of the lot is under water. Several of these proposed townsites were in valleys and river channels. Those in the river channels were washed out in the flood of 1916. In one townsite, located in the desert, the improvements consisted of the grading of the streets, a well, and a hotel. Today only a part of the hotel remains. Approximately fifteen townsites were subdivided in that early period; today those areas are used for grazing.

In this early period there were a few who attempted to develop mountain recreational sites by subdividing tree-covered areas into lots; the size of lots for recreational use being 20 x 80 feet. One subdivision consists of 4,200 lots of this size. In 1934 a check was made in regard to this particular subdivision as to delinquencies and it was found that 3,000 lots were delinquent. The cost to the county for listing each lot on the books of the Assessor and Tax Collector and the publishing of the delinquent tax list amounted to approximately $1.20 per lot. For the lots not delinquent the county received only 87 cents per lot.

In 1911 the county adopted its first subdivision ordinance, No. 218. This ordinance established the minimum requirements as to street width, alignment, grade, construction, survey data, and filing of map. There were no minimum requirements as to lot size or block design. Tentative maps were not submitted, and there was no agency responsible for checking layout design. The practice followed was the submitting of a final map and title sheet for recordation.

In 1936 a revised subdivision ordinance was adopted, Ordinance No. 53, New Series, requiring tentative maps to be submitted and a field inspection trip on the tentative layout. This ordinance included minimum requirements on the items mentioned in the old ordinance, and in addition set up minimum requirements as to lot area for residential use of 6,000 square feet, minimum lot width of 60 feet for residential use, and the establishment of building lines where streets are accepted of narrow width; also that the subdivision must conform to the master plan of the community.

A survey made by the County Planning Commission in 1934 in regard to subdivision development from 1880 to 1930 in the unincorporated area of the county brought out the following:

Number of subdivisions	539
Number of lots	104,198

SIZE AND NUMBER OF LOTS

Size	Number	Percentage
Acre or More	15,270	14.66
5,000 Sq. Ft. to .99-Acre	35,578	34.14
Under 5,000 Sq. Ft.	53,350	51.20

Total number of lots improved, including all sizes of lots—11,093 or 10.64 per cent.

The following is a comparison of subdivision lot sizes:

SIZE OF LOTS

Size	Percentage
1880-1930	
Acre or More	14.66
5,000 Sq. Ft. to .99-Acre	34.14
Under 5,000 Sq. Ft.	51.20
1930-1940	
Acre or More	47.43
½-Acre to .99-Acre	19.74
6,000 Sq. Ft. to .49-Acre	32.83
Under 5,000 Sq. Ft.	00

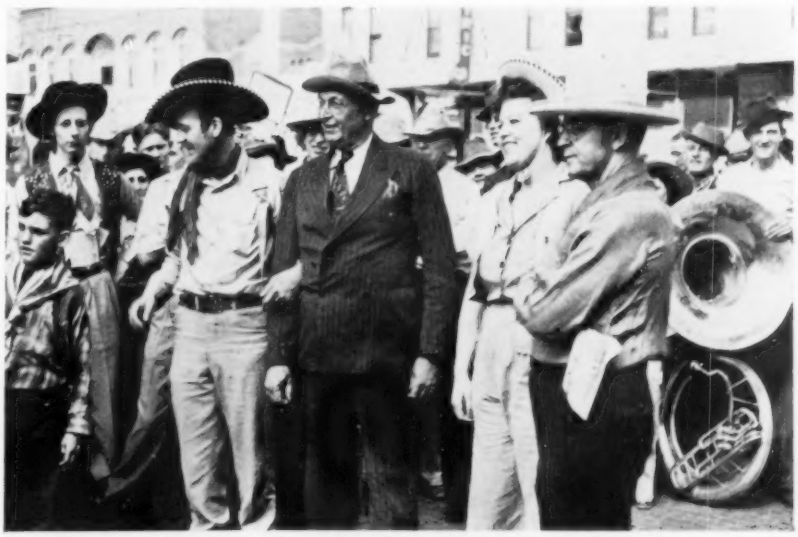
LORIN W. DEEWALL,
San Diego County Planning Engineer, California.

Amarillo's Industrial Open House

AMARILLO, TEXAS.—To develop Amarillo into the distributing center of the Great Plains has become only a matter of publicizing her wholesale and manufacturing facilities, according to her merchants. Therefore, April 15, 16, and 17 were proclaimed Amarillo Industrial Open House, when Amarillo merchants invited friends and customers within a radius of 300 miles to inspect her industries, and enjoy free entertainment.

Since Amarillo is situated in the center of a vast cattle, wheat, and oil domain, its industrial leaders are fully aware of the saving in time and transportation costs that would accrue to retail merchants within the trade territory through the development of its wholesale industry. With adequate rail transportation and paved highways in all directions, rapid delivery of merchandise is assured throughout the trade area. The fact that Amarillo is situated at the junction of two transcontinental airlines further contributes to its distributing facilities. The city has been pushing its industrialization plans for several years, and the Industrial Open House was the first concerted effort to show progress.

Visitors from ninety towns in the trade territory, comprising the Texas Panhandle, Eastern Oklahoma, Southern Colorado, Western Kansas, and New Mexico, thronged the city, bringing their bands, their queens and prin-



Watching a Street Show at Amarillo's Open House

Fairchild Photo

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cesses, to compete for the title of "Miss Industry of 1940" and their retail merchants who were interested to learn the marketing possibilities of this city of 53,000 people.

With all entertainment provided free by *The Amarillo Times*, sponsors of the event, the three-day program included street parades, banquets, floor shows and dances, trap and skeet shoots, a golf tournament and dedication of Amarillo's new municipal golf course, free movies, and, the grand finale, a stage show, "Panhandle Pep," broadcast over a coast-to-coast hook-up. Individual industries arranged plant tours, exhibits, and special entertainment for their own guests.

But it was not all fun and frolic at Amarillo's Industrial Open House. In advance of the three-day celebration, the greater economic purpose of the event was stressed in 25 consecutive radio programs over Station KFDA, when guest speakers from neighboring towns and from local industries joined in acquainting the plains area with Amarillo's desire to serve the region as marketing center and with the variety of merchants available there, and extending invitations to the Open House. Machine shops, farm equipment, oil-well machinery, cattle and dairy supplies, meat packing, wholesale hardware and drugs, creameries and bakeries, all types of building materials, barber and beauty supplies were among the 360 participating industries.

Many retail merchants of the plains region found in their recent tour of Amarillo's wholesale and manufacturing plants that they could secure complete stocks of merchandise there, could order frequently, as their needs arise, and be assured of prompt delivery. After all, that was the purpose of Amarillo's first Industrial Open House.

HAZEL C. UPSHAW.

Continued Progressive Street Widening by Setting Back New Buildings

AKRON, OHIO.—In the July, 1929, issue of THE AMERICAN CITY (page 139) appeared an article by E. A. Kemmler, Chief Engineer, Bureau of Highways, on progressive street widening in Akron. In this article were enumerated the streets upon which building lines were established in 1919 and which were also listed in a program of progressive street widening. The total length of these widenings would come to 104,900 feet.

The years between 1930 and 1940 brought considerable activity in street widening. During these years, Akron received definite benefits due to the fact that building lines had been established in 1919. In this second ten-year period, our program of progressive street widening completed a length of 18,363 feet, or approximately 3.6 miles.

The table at the top of this page, summarizing final costs, should be of interest.

These costs are amounts paid property owners, and do not include engineering, appraisals, court costs or overhead.

To determine an estimated savings to the city of Akron through the establishment of building lines, we can safely assume that the value of the buildings set back by virtue of the building lines compares favorably with the cost per square foot of those buildings cut back in the process of street widening.

L. B. HIEBEL,
Planning Engineer, City Planning Commission.

STREET WIDENING SUMMARY OF FINAL COST STATEMENTS

Streets	Sq. Ft. of Land Taken	Cost of Remodeling Buildings	Unit Costs: Land Only Per Sq. Ft.	Unit Costs: Av. Per Sq. Ft. Land & Building	Unit Costs: Bldgs. Only Per Sq. Ft.
E. Exchange (Grant to Spicer)	78,144	$170,722.00	$1.27	$3.95	$2.20
E. Exchange (Spicer to Market)	106,446	146,732.00	.86	2.95	1.38
E. Market (High to College)	18,518	141,764.40	3.11	11.14	7.82
E. Market (Arlington to Cook)	57,715	930,014.50	4.14	21.27	16.13
E. Market (Cook to Wigley)	24,488	89,800.50	2.64	7.65	3.68

TABLE SHOWING SAVINGS TO THE CITY IN STREETS WIDENED
1930 - 1940

	*Sq. Ft. Between Old and New St. Line	Cost Per Sq. Ft.	Savings
E. Exchange (Grant to Spicer)	1,488	$2.20	$3,274.00
E. Exchange (Spicer to Market)	5,736	1.38	7,916.00
E. Market (High to College)	7,330	7.82	57,321.00
E. Market (Arlington to Cook)	2,471	16.13	39,857.00
E. Market (Cook to Wigley)	2,454	3.68	9,031.00
Total Savings			$117,399.00

* Represents the area in square feet of portion of building which would have been cut back if the owner had not observed the building line.

On East Market Street, Akron, Before Widening

Where Buildings Were Removed or Cut Back in the Section Above

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TAX RECEIPT

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(OTHER FACTS MAY BE STATED HERE) CITY OF BURROUGHSVILLE

ITEM NO.	ASSESSED VALUATION			GENERAL TAXES AT 11 M MILLS ON THE DOLLAR	INSTALLMENTS	
	LAND	IMPROVEMENTS	TOTAL VALUATION		FIRST	SECOND
30 96	32 67	45 00	77 67	291 25	145 63	145 62

NAME AND ADDRESS	PROPERTY DESCRIPTION	
JAMES K ARNOLD 1620 OAK STREET	S ½ OF NW ¼ OF WARD 12 LOT NO 114 PARCEL NO 436	Penalty Discount Amount Paid

PAYMENT RECEIVED AS CERTIFIED BELOW:

SECOND INSTALLMENT				FIRST INSTALLMENT			
SERIAL NO.	DATE	CODE	AMOUNT	SERIAL NO.	DATE	CODE	AMOUNT
PAID CHK 4999	SEP 23 39		145.62 *AM	PAID CHK 0997	MAR 439		145.63 *AM

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The Industrial Appeal of Adequate Disposal Capacity for Wastes

PATERSON, N. J.—In studying the advantages which Paterson possesses for industrial development, the local Industrial Commission, the first of its kind in the state, discovered among those of outstanding importance: location with reference to the metropolitan area, markets, and auxiliary industries; reasonable fuel and power costs; a dual supply of water—separate potable and industrial systems; a large and diversified skilled labor market; and one advantage which eliminated what in many places had been a major difficulty.

This advantage is adequate excess capacity in the Passaic Valley Trunk Sewer for handling an increased volume of industrial wastes.

This fact has been advertised in information which has been distributed by mail, in newspapers, in magazines, and on billboards. The Commission reports that it is difficult to say whether this particular advantage has been the sole or the great contributing factor in securing more than seventy new industries in the past few years. This specific appeal has found a greater response in New England than in other parts of the country, and in discussing the matter with prospective industrialists, the existence of this trunk sewer in Paterson has been very helpful in the prosecution of the Commission's program.

At the present time, Paterson is using about 60 per cent of its allowable maximum hourly flow of 56,172,000 gallons, the sewer's present margin of unused capacity, and is able to take care of its industrial needs for many years and for a considerable amount of additional industrial growth. Paterson makes no special charge for the use of this sewer by its industrialists, the cost of maintenance being absorbed in the total tax rate. Since the sewer was built many years ago, a substantial portion of its cost has been liquidated.

The laws and sanitary regulations against stream pollution are everywhere being made more and more stringent. In many communities, separate disposal plants must be installed by industries; in others industrial processes must be altered to produce less offensive waste; in still others, wastes must be purified before being discharged into streams. Whatever the restriction upon pollution, its imposition involves the cost of expensive plant and equipment, wages for auxiliary functions, and the diversion of attention from the primary function of the industry. Industry in Paterson is free from these burdens because polluting wastes are discharged through the Passaic Valley Sewer.

CHARLES H. ROEMER,
President, The Industrial Commission.

WHY YOUR INDUSTRY SHOULD LOCATE IN PATERSON, N. J.

Paterson has permanently solved the disposal problem of industrial

WASTE

... through the construction of the Passaic Valley trunk sewer which empties into the Atlantic Ocean. Paterson at present uses only 60% of the maximum hourly disposal flow of its sewage system. Manufacturers may locate here, confident that their disposal problem will be taken care of permanently.

Solution to the industrial waste disposal problem is but one of the many reasons why approximately 1,000 industries now serve Paterson, with their sales being added each year. Your request for that reason for our 72-page booklet, INDUSTRIAL ADVANTAGES OF A PATERSON LOCATION, will be filled free when request is made on firm's letterhead. Address:

INDUSTRIAL COMMISSION, City Hall
PATERSON, N. J.
"Where Industry Keeps Pace With Progress"

New Library in Park

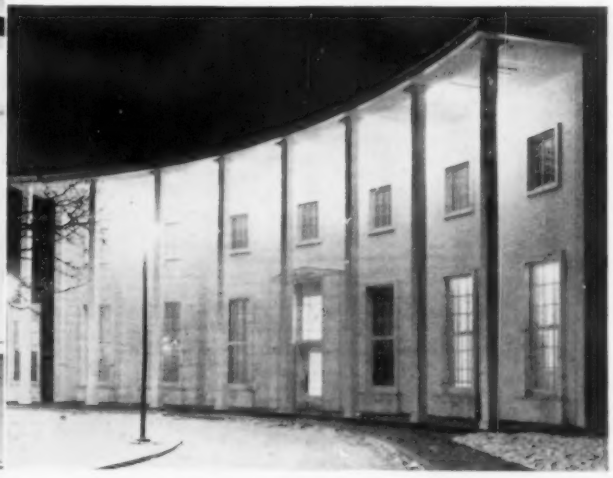
MASON CITY, IOWA.—Built as a PWA project at a cost of $308,000, the new library at Mason City is situated on a beautiful park donated to the city for that purpose by Mrs. C. H. McNider. It was designed, and the construction superintended, by Holabird & Root, architects, of Chicago.

The library extends in a complete quarter-circle. Besides facilities for general public, school and branch library use, including reading and reference rooms, the building contains club rooms and a small auditorium. A complete section is entirely for children, having small chairs and tables, appropriate books and magazines and pictures, and a story-telling bay completely glassed in and overlooking the park and stream. The library also has an Iowa room, containing only books, pictures, etc., of and about Iowans.

The building has been planned with an outlook toward expansion.

HERBERT T. BARCLAY,
City Manager.

Library in Mason City, with Main Room and Story-Telling Bay



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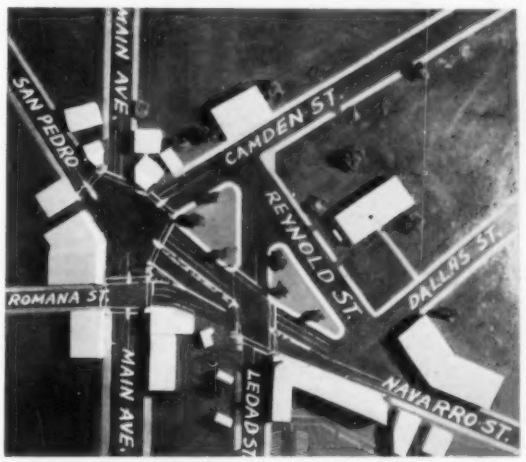
Traffic Control and Facilitation

Conducted by Publications Committee, Institute of Traffic Engineers, 60 John St., New York
Paul L. Green, Chairman; Louis A. Andriacchi, Frank A. Ashe, Charles G. Beckenbach, Wallace L. Braun, Nathan Chernlack, Carl E. Fritts, Alexander A. Hayton, Otto K. Jelinek, Harry C. Koch, Merwyn A. Kraft, Franklin M. Kreml, Tracy D. LeMay, Harry E. Stedman, Robert O. Swain

3 Purpose Channelization Way Safety Design

By VIRDEN A. RITTGERS
City Traffic Engineer, San Antonio, Texas



ROMANA PLAZA, a notorious traffic maze of San Antonio, Texas, is a strainer for 50,000 vehicles or 100,000 people every 24 hours. Five of the eight roadways entering it are major traffic arteries connecting the large north and northwest residential areas of the city with the central business district a few blocks to the south.

The control system for the Plaza from the standpoint of the traffic officials had reached the ultimate in simplicity. There wasn't any. The Police Department had tried various plans of officer control, from one man to a whole squad. They tried laning the area with paint lines, and using signs. Everything failed.

Drivers traversing this uncontrolled area from northwest to southeast or vice versa might choose (or be forced to take) any path over a roadway width of 70 to 80 feet. During the heaviest traffic periods tie-ups were frequent and many vehicles were shunted or "blocked" far out of position. Conversation about traffic in San Antonio invariably began or ended with Romana Plaza. This notorious reputation produced abnormal vigilance, and usually minor collisions. Many citizens suggested a variety of plans for solving the problem. Oddly enough, one of the best suggestions, crude as it was, within reason, was a signaling plan drawn out on wrapping paper and presented in person by a Negro truck driver.

The traffic problem at the Plaza became a campaign issue in the last municipal election.

Traffic Control Plan Ordered

Ray Ashworth, the city's new Chief of Police, hadn't been in office long before he installed a traffic engineering section in his modernized Police Department. His first order was—not to conduct a general traffic survey of the city, but—to design a traffic control plan for Romana Plaza.

Early study of the problem disclosed the impracticability of a traffic circle, because inadequate space and extreme irregularity of street approaches made a general rotary movement inadvisable. The pedestrian problem further rendered a circle impracticable. While the pedestrian volume was not extremely heavy, a check during four selected hours revealed 2,600 pedestrian crossings for the entire area of the Plaza.

Grade separation is likely to be the ultimate solution when funds become available. Too much traffic passes through the Plaza ever to be handled properly at grade. Some of the flow should be by-passed; but even so, this crossroads of major arteries can be expected to carry a traffic overload until physically separated.

Channelization Before Signaling

Thus a two-part traffic-control plan of signaling and channelization was indicated as the only immediate solution. The expanse of roadway, together with its irregularity, revealed at once that signalization would be a failure unless the multiplicity of movements was reduced and the traffic put into physically defined roadways where the signals could "get hold of it." Here, then, was a striking example of the need for signaling so that drivers could "take turns,"—but where *heavy channelization was imperative before the signaling could be made effective.*

The channelization plan adopted had three primary functions. The first function was to bring traffic under a degree of control by providing more definite routes, fitting natural and desired movements, and prevent unnecessary and conflicting movements.

First, a triangular island was designed, to separate the large central area into two main roadways, one northwest-southeast for Main, San Pedro and Navarro Streets, and one east-west for Romana and Navarro Streets. The northwest-southeast flow, being the heaviest movement through the area, was further channelized about its centerline. A long, 8-foot medial island was placed through the main area, with tapered islands in each approach, across Main Street on the west and across Soledad Street on the east. Drivers in San Antonio have a pronounced habit, largely due to narrow streets, of pulling to the left side of the street alongside other vehicles waiting at a red light. Here they constitute a hazardous obstruction to traffic, including pedestrians. Therefore it was decided to install small streamlined center islands on Main Street at the north and south sides of Romana Street and on Camden Street. The north Main Street approach and the south Soledad Street approach were too narrow (39 feet) to accommodate islands. A further function of the Main Street island at the north side of Romana was to discourage drivers from angling across Main Street from the north and northwest for a corner-cutting left turn into Romana.

The second function of the channelization was to protect and guide pedestrian crossings. A glance at the layout will show the complicated problems for a pedestrian crossing from Main and Romana, in a northeasterly direction. Stores about the southwest corner of the Plaza, and two large hos-

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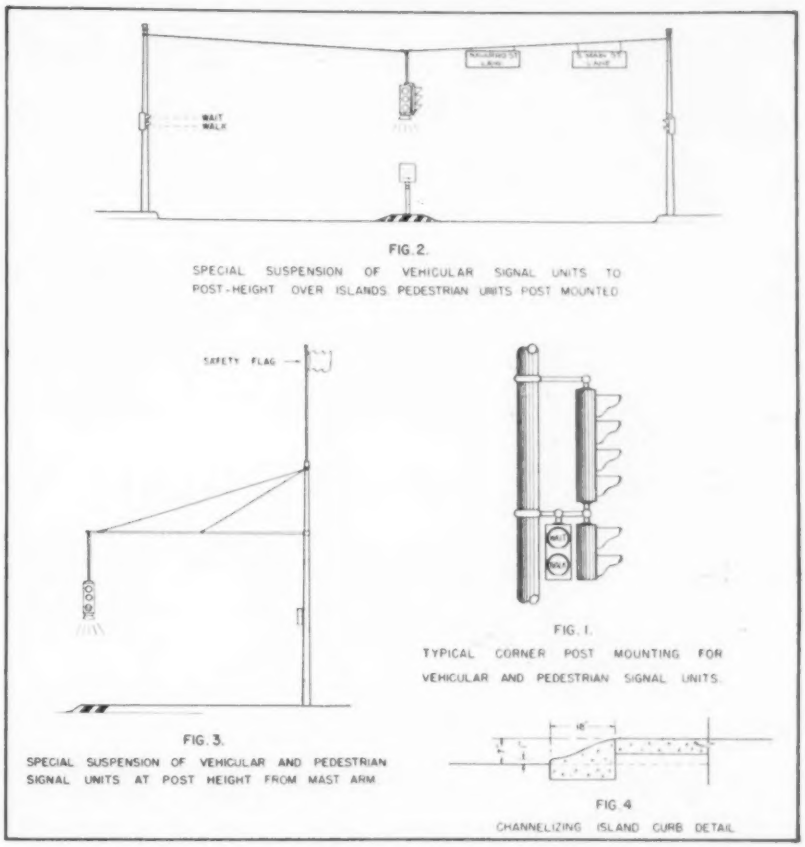
pitals, a church and the residential area to the northeast, result in approximately 800 pedestrian crossings daily over this trying route. A large high school one-half block south on Main Street and a large Sears store at the southeast corner of Navarro and Soledad add to the pedestrian problem. North-south pedestrian crossings at the west line of Soledad Street are to be discouraged by pipe barriers at the curb.

The third function of the channelization was to facilitate signal placement. Good signal location at ordinary intersections is simple. As the size and complexity of the intersection increases, the problem of locating signals successfully becomes greater. However complicated a traffic-control device or system, its test lies in its clarity to the approaching driver. The driver is not concerned with design complications, and frequently the complexity of the driver problem is in inverse proportion to the complexity of the traffic engineer's design.

Standard signal location was used only at the junction of Main and Romana Streets, which was converted into a normal two-street intersection. Fig. 1 shows the signal-head arrangement. At other locations, the rule was to install them where they could best be seen. Signals were located over the islands in the center of the heavy northwest-southeast flow. This permitted a definite separation of the pedestrian and vehicular signals at these points, which was considered desirable in reducing the likelihood of confusion. The pedestrian units were placed at each end of the crosswalks, by themselves.


WAIT
WALK
FIG. 2.
SPECIAL SUSPENSION OF VEHICULAR SIGNAL UNITS TO POST-HEIGHT OVER ISLANDS. PEDESTRIAN UNITS POST MOUNTED
SAFETY FLAG
FIG. 3.
SPECIAL SUSPENSION OF VEHICULAR AND PEDESTRIAN SIGNAL UNITS AT POST HEIGHT FROM MAST ARM
FIG. 1.
TYPICAL CORNER POST MOUNTING FOR VEHICULAR AND PEDESTRIAN SIGNAL UNITS.
FIG. 4
CHANNELIZING ISLAND CURB DETAIL

Elements of Crouse-Hinds equipment which regulate traffic at once-"notorious" Romana Plaza

Three-Way Safety Design

The signals located at the islands in the central portion of the roadway were designed to be set at post height —not supported by posts or pedestals, but suspended by overhead cables and dropped to the desired height by a short spacer, as shown in Fig. 2. Thus the likelihood of the occasional "wild" driver's striking a pedestal, particularly late at night, was eliminated, while ideal visibility of the signal lights was retained. Cable suspension being unsuited for the northwest and southeast corners of the large triangular island, these signals were designed to be suspended to normal post height from long mast-arms which were in turn supported by one long post located in the central portion of the island. (See Fig. 3.) This plan, together with the removal of a heavy ornamental street-light pedestal from the center of the Plaza, left the area substantially clear of obstructions.

Floodlighting the ends of the islands in the wide northwest-southeast roadway, from the bottoms of the suspended signals, was thus possible without requiring posts for that purpose.

Another safety factor in the general plan was provided in the design details for the islands. White concrete curbs were constructed 18 inches wide for the 7-inch height, as shown in Fig. 4. Low shrubbery will outline the long medial island and the triangular island to make the islands stand out, to discourage pedestrian jaywalking, and to improve appearance. The noses of the islands were striped diagonally, and the needed signs, supported on striped 4 x 4-inch wooden posts equipped with red reflectors, were installed on the islands. The wooden posts give "bulk" for visibility, yet do not constitute a serious obstruction to a vehicle even in an emergency.

Signal Timing Control

It was decided after some study to control the 18 signal heads and 35 signal faces for the Plaza area by one central controller. The numerous movements of vehicles and pedestrians involved, together with the varying clearance distances, called for several odd amber periods and several small lags and leads in addition to the general three-phase cycle. The result was a 16-interval timer with 45 color circuits. Program-type timing was employed in order to keep the cycle length at a minimum for the varying flow of traffic throughout the day. In order further to economize on cycle time, a means was required for lengthening only the desired interval or intervals without lengthening all intervals proportionately. This controller is reported by Crouse-Hinds Co. to be the most extensive yet produced for this type of installation.

Construction of the channelizing system is complete, and installation of the signal equipment began in May. Drivers adapted themselves to the new layout with little difficulty even before the laning and marking was complete. One tenant of a small hotel on the Plaza commented that only since completion of the islands had he enjoyed a complete night's rest in the absence of "screeching brakes, blasting horns and scraping fenders."

The improvements were carried out under the supervision of City Engineer Thomas H. Coghill and Claude Converse, Superintendent of Fire and Police Alarm.

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"Do Not Cross Yellow Line on Your Side of Center Line"

By HARRY E. NEAL
and
FRED C. TARBOX*

THE title of this article is the slogan of the 3,000,000 motorists of Ohio and of those of other states which have adopted standard markings for no-passing zones. There are many locations on every highway system where it is impossible for drivers to have a clear view ahead for sufficient distance to permit them to pass a car ahead in reasonable safety. These areas will be marked with a yellow line on the side of the center line from which passing would be hazardous.

These markings are not the dictates of official experts, but were adopted because tests and trials proved them to be most understandable to motorists.

In Other States

Field studies in other states showed that there was no question about the desirability of marking no-passing zones, but the lack of uniformity in methods was astounding. A tabulation of "Methods of Signing and Marking No-Passing Zones" by the Public Roads Administration indicated that, of the 37 states marking no-passing areas, 5 marked them with no-passing signs and 32 with pavement markings; 22 continuing a special stripe throughout the entire zone and 10 states using types of markings which restricted crossing only as long as the sight distance ahead was limited. Of the ten states using directional markings, four restricted passing when a yellow line was on the right side of a black or white center line; two restricted passing when an auxiliary white line was on the right side of a yellow center line; one state when an auxiliary white line was on the left of a yellow center line; two states restricted passing when a broken line was on the right of a continuous center line; and one state restricted passing when a solid line was on the right side of a broken center line.

The general practice of placing a barrier line on the right side of the center line—that is, the side from which passing would be hazardous—seemed to be fairly well established, so we accepted it. There remained, then, only three ways to differentiate the barrier line from the center line: by color, by width, and by continuity (that is, a broken barrier line with a continuous center line, or vice versa). These features were incorporated into the no-passing lines that were tried out on a section of US 40 just east of Cambridge, Ohio.

Intensive studies established the value of no-passing zone markings. Of the drivers questioned, 97.5 per cent said that no-passing zone markings helped them to drive more safely. Speed tests indicated that the speed characteristics of the traffic passing through hazardous locations were stabilized; and observance studies proved that, in zones marked with no-passing zone markings, drivers tended to keep to their own lanes.

Center-line violation studies revealed that an average of 1.40 per cent of the vehicles observed passed when no-passing zone signs were used, while 0.99 per cent passed when a continuous white barrier line was used, and 0.71 per cent when a continuous yellow barrier line was used. These data seemed to indicate that pavement markings were more effective than no-passing zone signs. The desirability of pavement markings was further substantiated by a driver questionnaire; 84 per cent preferring pavement markings, while only 8.9 per cent preferred no-passing zone signs.

In comparing various methods of no-passing pavement markings, the data collected indicated that a continuous yellow barrier line placed on the right of a white center line was more effective than a continuous white barrier line alongside a broken white center line. Sixty-six per cent of the drivers questioned preferred the yellow barrier line marking, while 34 per cent preferred the white barrier line.

Distinction of the barrier line by color was found to be more effective than by line width. Of the drivers who had the opportunity to compare a 4-inch yellow no-passing line on the right of a 4-inch white center line with a 6-inch white no-passing line on the right of a 4-inch white center line, twice as many preferred the first type marking to the latter type.

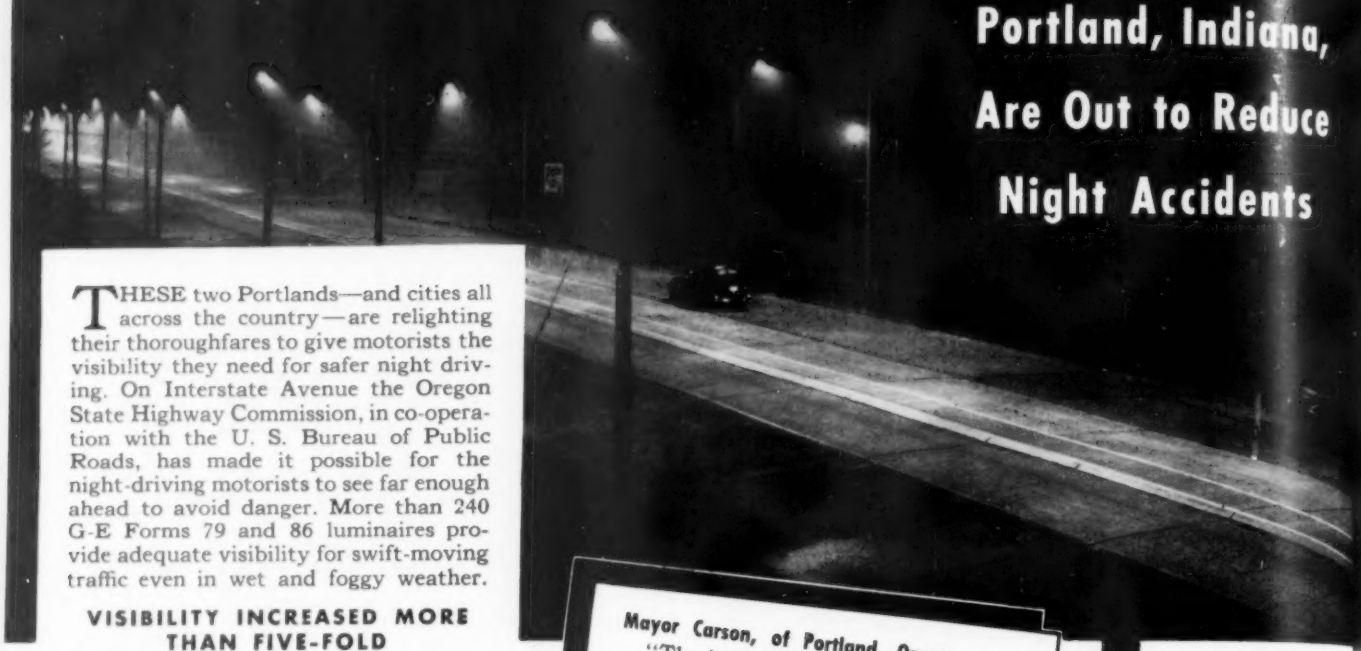
A summary of all the data seemed to indicate that no-passing zone markings should consist of a continuous yellow barrier line placed parallel to and on the right-hand side of a white or black center line, and that the barrier line should not be narrower than the center line. From observations of various spacings between the center line and the barrier line, it appeared that this separation should not be less than two inches. These conclusions substantiate the recommendations of the American Association of State Highway Officials for uniform marking of no-passing zones.

Ohio's new method of marking no-passing zones with a 4-inch yellow barrier line placed 3 inches to the right of a 4-inch continuous white center line will be used on all state highways. The areas of limited sight distance are being established by the District Traffic Engineers of the Division of Traffic and Safety. It is hoped that Ohio has adopted a standard which will become uniform throughout the country.

* These tests and studies were carried on by the Ohio Department of Highways under the direction of Harry E. Neal, Chief Engineer of the Division of Traffic and Safety, and Chairman of the Highway Research Board Project Committee on Markings for No-Passing Zones. Though the final report of the Highway Research Board Project Committee has not been made, the studies that were conducted in Ohio verified the type of marking recommended by the American Association of State Highway Officials, and the Ohio Department of Highways is this year adopting new standards in pavement markings. Frederick Chalmers Tarbox is Assistant Traffic Engineer, Ohio Department of Highways.

TWO MORE CITIES

Portland, Oregon, and Portland, Indiana, Are Out to Reduce Night Accidents



THESE two Portlands—and cities all across the country—are relighting their thoroughfares to give motorists the visibility they need for safer night driving. On Interstate Avenue the Oregon State Highway Commission, in co-operation with the U. S. Bureau of Public Roads, has made it possible for the night-driving motorists to see far enough ahead to avoid danger. More than 240 G-E Forms 79 and 86 luminaires provide adequate visibility for swift-moving traffic even in wet and foggy weather.

VISIBILITY INCREASED MORE THAN FIVE-FOLD

In 1914 Portland, Ind., put in 4000-lumen lamps. They were adequate for "Model T" traffic, but today the high-speed and heavier traffic demands far better lighting. The municipal light plant has now given its citizens traffic-safety lighting with 226 Form 81D luminaires. The results? More than five times the visibility.

Has your city looked into the opportunities for saving lives and money by relighting main thoroughfares? Remember—*darkness is so significant a traffic hazard that the prevention of only 1/3 of the adult pedestrian fatalities that occur after dark would save more lives than the elimination of all adult pedestrian fatalities in the daytime.*

Why not ask the nearest G-E Office for a lighting survey of your streets? General Electric Company, Schenectady, N. Y.

The G-E Form 79 is a low-cost suspension luminaire that puts more glare-free light on the roadway. It's fully described in Bulletin GEA-2276C. Ask for your copy

Mayor Carson, of Portland, Oregon, says:

"The installation on Interstate has greatly added to the appearance of the district. The excellent lighting facilities have indeed been of great help and advantage to the motorist and pedestrian and make night driving and pedestrian travel much more convenient and safer."

W. M. Emerson, Supt. Municipal Light Plant, Portland, Ind., writes:

". . . . more than fulfilled our expectations. The modern General Electric Form 81D luminaires have made a tremendous improvement over the old lighting system. We are certain that the new lighting will mean increased safety and convenience for motorists and pedestrians in our business district and will stimulate trade for our merchants."

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GENERAL ELECTRIC

Outdoor Lighting

Streets—Highways—Floodlighting

Lighting Municipal Gardens

By S. G. Hibben
Director of Applied Lighting, Westinghouse Lamp Division, Bloomfield, N. J.

THE beautification of almost every city begins with the smaller parks and planted areas and extends through larger parks, avenues of trees, or highlights of especial interest in flower-beds, pools and fountains. Hence it is understandable why much attention has concentrated upon the night-time enjoyment of these areas. Certainly it is after sundown during the cool evening hours of summer that citizens find leisure to enjoy their municipal gardens and parks.

Tourists and visitors to the community will be impressed by their night-time glimpses of these unusual beauty-spots. In general, property values are enhanced, especially in the vicinity of a landscaped area that is lighted to an extent that will at least remove all doubts of safety. The fairyland appearance of a well-lighted garden spot at night is often so strangely different from the daytime aspect that one gets new pleasure from the night-time picture (Fig. 1).

When planning the lighting of a public area, it is always well to remember that the details of construction and installation must provide for a sturdy, all-weather, tamper-proof and safe job. Fragile equipment, or the light, portable devices that serve well in the private garden, may be far too transient or too delicate for the public park. Most parks are—or can be—used throughout the year, and can be as pleasing during winter weather as in the summer time.

Ruggedness does not presuppose ugliness. In fact, the chief reason for installing any lighting in a landscaped public area is to create certain spots of striking beauty (Fig. 2). The decorative value of the installation surely will be lost if light is used merely to "whitewash" the lawns or flower-beds.

Foremost among likely places to begin the night-time beautification of the city is an avenue of fine trees. Most towns boast such an asset, and many are coming to realize that those trees can be made as beautiful by night as by day. Among several of the more unusual lighting methods applicable to larger trees is the placement, at ground level, of two to four mercury-vapor lamps, pointing upward. These should be about two-thirds the distance from the trunk to the spread of the branches in the case of more open deciduous trees such as elms or maples. For trees of denser foliage, such as cedar or spruce, the sources may be outside the spread of the lower branches and aimed to graze the branch tips.

Under mercury illumination, the green chlorophyll in the leaf takes on a peculiar brilliance through a combination of fluorescence and reflection that gives to the tree a crisp, fresh aspect (Fig. 3). Limbs and branches become silvery. For smaller trees where the projectors may be set into the ground or concealed in low shrubbery, many engineers recommend the use of Type A-H4, 100-watt mercury lamp in a 6- to 10-inch aluminum reflector with rain-tight cover glass. For better concealment, they recommend the Type D-H4, 100-watt mercury lamp in the PAR 38 bulb, a self-contained and hermetically sealed reflector and lamp in a single unit. No further reflector equipment is required. This lamp, 4¾ inches in diameter, should be firmly fitted in a watertight soft-rubber socket. The whole can then be buried with the lens-end of the lamp bulb approximately flush with the turf. Such units will not be damaged by cold water, by being stepped upon, or by the careful passage of a hand mower.

For larger trees, the 250-watt Type A-H5 high-intensity mercury lamp (Fig. 4) is suggested, in a reflector designed to be buried in the ground with a clear glass lens flush with the sod. Usually two of these units placed at opposite sides of the trunk will suffice for, say, a 50-foot maple.

All the mercury-vapor lamps require an operating transformer. For the 100-watt mercury lamp, the transformer approximates a 5-inch cube in size. In the case of the 250-watt units, it is practical to mount the transformer in the base of the container housing the reflector and lamp. For the 100-watt sizes, it is usually more practical to seal the transformer in a watertight can or enclose it in a small concrete box beneath ground level.

During the winter season the mercury floodlighting of evergreens or of larger shrubbery such as rhododendrons is exceptionally lovely in contrast to the backgrounds of snow and ice. The community Christmas tree remains in appearance a lovely bright green and silver tree, rather than a dark and vague support for lamps or ornaments, if it is floodlighted with concealed high-intensity mercury lamps.

Treatments of small pools, especially in rustic settings and with irregular stone borders, suggest concealment of bare lamp bulbs under the overhanging slabs of the parapet (Fig. 5). Commercial waterproof cable terminating in a soft-rubber socket will withstand several years of immersion. For wider pools, the reflector type of filament lamp can be anchored beneath the parapet and tilted slightly downward. An imitation lily-pad is available, kept to the surface by the buoyancy of the lamp bulb held beneath it by a wire clip. The rubber socket permits the lamp to remain immersed. The chief objective is to illuminate the bottom, since by reflection the entire water seems luminous.

Often a flowing stream provides low falls that may be treated in the same fashion. Care must be taken to use lamp bulbs of hard glass unless these be completely submerged. Otherwise the splash of water may crack them. Where a small spillway occurs and the space behind the fall is relatively dry, it is practical to us tubular sources concealed beneath an overhanging lip (Fig. 6). The fluorescent Mazda lamp, in tints of daylight, white, green, or blue, serves excellently, but cannot be operated in an open position at temperatures much below the freezing point. Larger waterfalls can be floodlighted best with the 250-watt or 400-watt mercury lamps, provided the water is well aerated, and provided the incident footcandles are on the order of 5 or better.

Alternative ways of treating edges of shrubbery or flowers consist of va-

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TO "SAFETY AFTER SUNDOWN"

The capital city of Texas practices safety as well as preaches it. Several years ago Austin launched a street lighting modernization program and they've kept the ball rolling ever since. Pictured above is their newest installation on San Jacinto Boulevard. Note the position of the high intensity luminaires. They're up in the air (22 ft.) and over the street to insure greatest visibility and minimum glare. And you'll have to admit that the lighting standards are decidedly in harmony with the attractive appearance of their surroundings.

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THE UNION METAL MANUFACTURING CO.
CANTON, OHIO

rious figures, chiefly of small animals in colored enamelware behind which are concealed 10- to 100-watt lamp bulbs that face away from the observer. However, such objects are subject to theft or handling, and may thus give way to larger units overhead.

A public pool for wading or swimming often has sufficient depth of water to constitute a hazard if it is not illuminated. If such a pool is of light-colored interior finish, it can be made a beauty-spot through the use of underwater illumination. One very practical method is to provide fixed niches or emplacements in the side walls, usually one foot or more beneath the surface. In each niche may be fitted a sealed Aqualux unit or swimming-pool projector (Fig. 7). By coiling a few feet of waterproof cable behind the unit in the niche, it is possible to service a projector by lifting it out of its emplacement and onto the parapet. Roughly, 250- to 500-watt lamps suffice when spaced some 6 to 10 feet apart.

Too often the larger park area is not utilized after dark because the utilitarian street lighting does not extend for any considerable distance from the roads, or because the usual type of street-lighting pole may be considered displeasing when set in a rustic area. However, a little ingenuity in design may lead to the use of shorter and less conspicuous standards (Figs. 1 and 10).

Several types of underground duplex non-metallic sheathed cable (Fig. 8) are available for subsoil wiring. These may be trenched a few inches beneath the sod and terminate in a short vertical pipe in a small block of concrete, bearing on the upper end a capped, waterproof attachment outlet.

Among all the dignified yet lovely spectacles, one might look far to find something more graceful and charming than the single vertical jet of water from a smooth orifice and carrying upward with it the light from beneath the orifice. The stream rises as a silver rod, and breaks to a plume of sparkling brightness at the top. The secret of beauty lies in projecting the light along the jet and from within it (Fig. 9).

Costs? The answer is variable, but easily estimated for each specific case. For example, a pair of 100-watt mercury lamps to illuminate a medium evergreen would represent wiring and transformers costing perhaps $20. Lamp renewals annually might average $15 and annual (1,500-hour) power cost, $6 to $10. Some $200 worth of lighting equipment can beautifully illuminate a sizable fountain. Where can one find another such memorial gift that would provide pleasure for so many? Municipal garden lighting expresses a community joyfulness (Fig. 10—turn page).

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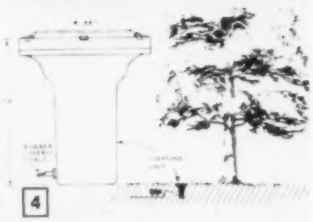
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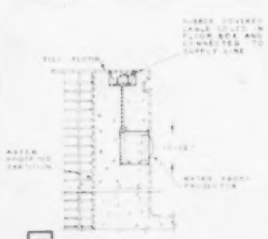
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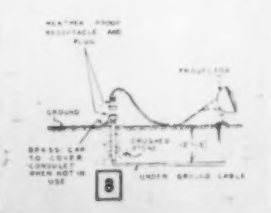
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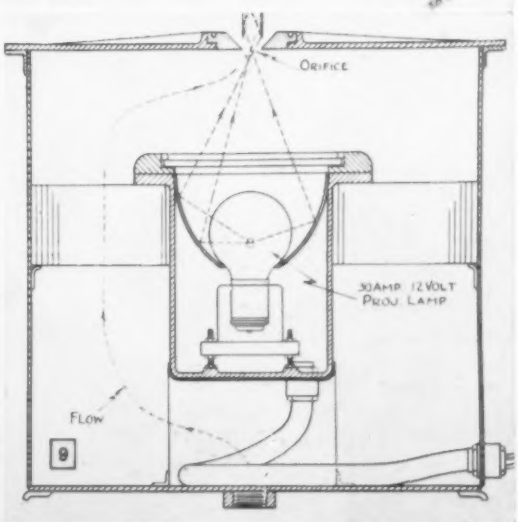

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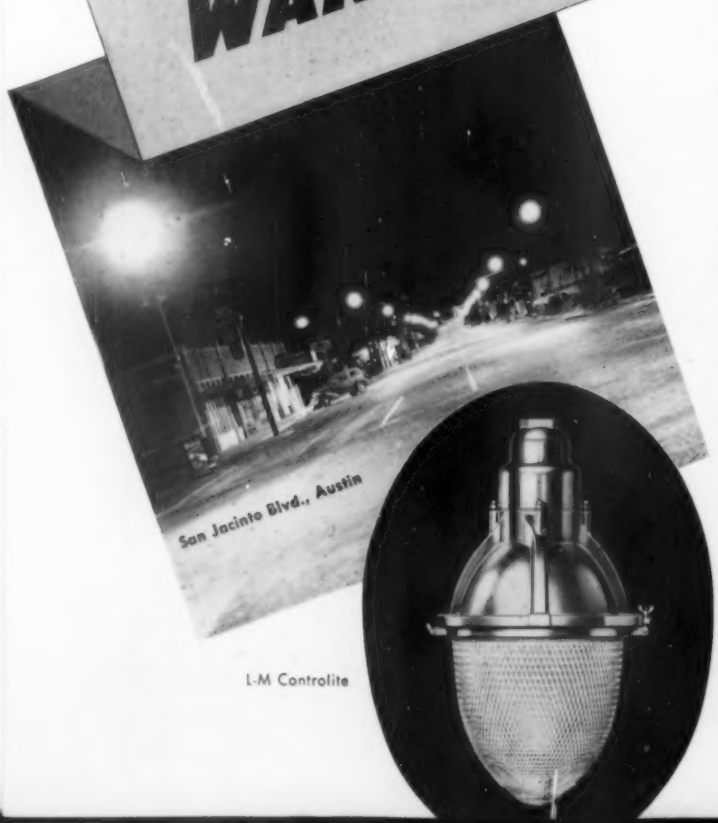
Sixth Street, Austin, Tex.

HERE'S WHAT AUSTIN WANTED -- and Got!



L-M Controlite

The city executives and civic leaders of Austin, Texas, knew definitely what they wanted when they planned the re-lighting of bustling Sixth Street and beautiful San Jacinto Boulevard. They wanted *visibility* that would assure safe driving and safe walking after dark . . . and *distinctive appearance* worthy of Texas' capital city.

The photographs tell the story of how completely Austin succeeded . . . getting *both* visibility and good appearance by choosing L-M CONTROLITE Luminaires mounted on L-M Union Metal Steel Standards. Note the results . . . the concentration of light on the street, the even distribution of light from curb to curb, the absence of light on the upper stories of buildings. It's this kind of lighting efficiency, combined with genuinely distinctive appearance, that makes the L-M CONTROLITE the logical luminaire for boulevard lighting. Ask your L-M representative for full details.

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Fig. 10 of Mr. Hibben's article. Left to right: Standard Westinghouse pedestal-type fountain owned by Orange City, Calif.; umbrella park standard, which confines rays below eye level; another municipal fountain, delight to the citizen's eye

New York's East River Drive

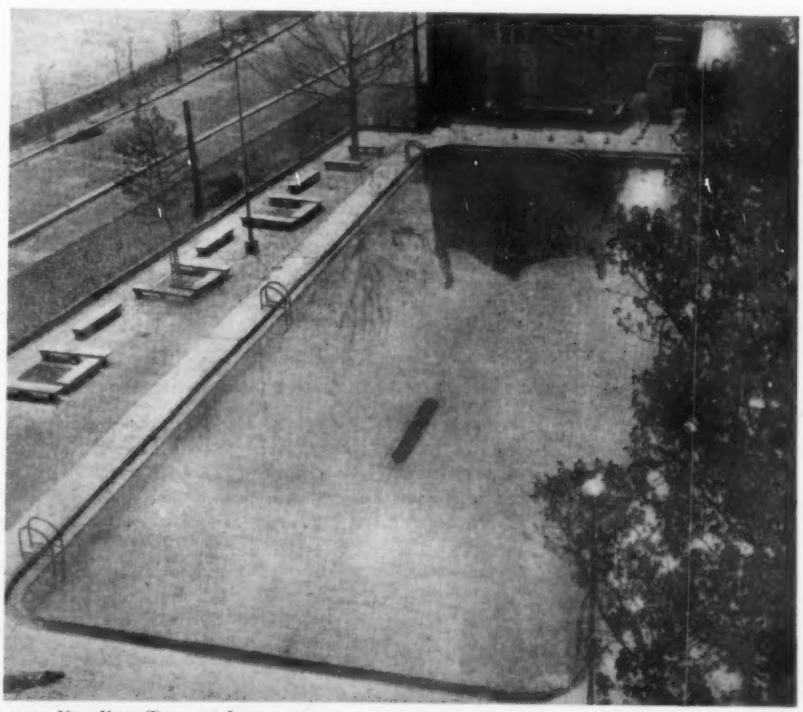
SOMETIME this month New York's East River Drive will be open, except for a detour from 23d to 49th Streets, from Montgomery and South Streets on the south, to 123d Street and the Triborough Bridge approach to Queens Borough, a total distance of 5½ miles. The entire distance is attractively illuminated by Triborough Bridge Authority (TBA) standards and luminaires along the considerable parked stretches; and by standard one-arm or two-arm type posts through the built-up sections of lower Manhattan; and by special fixtures in the tunnel sections. The roadway consists of two lanes 32 feet wide on each side, separated by a 5-foot center mall, the total width of the highway being 70 feet. The street lights are spaced 130 feet apart and mounted 20½ feet above pavement.

From Montgomery to 23d Street and from 64th to 81st Street the Drive was constructed on existing land and frequently required the demolition of buildings. The area from 54th to 64th Street is generally fill, and from 79th to 90th Street it is new land, created by the construction of sea-walls and filling in back of them.

Adjacent to the Drive are new parks and playgrounds. East River Park from Grand Street to 12th Street is a mile long. Carl Schurz Park from 84th to 89th Streets is being revamped to include the tunnel section, which is landscaped on top. These are one-way tunnels, sometimes one over the other, with sides partly open toward the river. The lighting of these parks—120 units for East River and 53 units for Carl Schurz—is part of this extensive installation.

The 194 TBA type units, consisting of steel shaft, cast-iron base and modern luminaire, were manufactured by the Daunt Corporation. The modern luminaires are made of heat-resisting glassware of the Consolidated Lamp and Glass Co., Coraopolis, Pa., with an inside reflector of Alzak aluminum which throws the light down on the roadway. All TBA units are equipped with 340-watt lamps. The streets adjoining the Drive have been relighted in accordance with their width and traffic load.

The improvement includes two overpasses, a lighted ferry terminal roof terrace with connecting ramps, and the landscaped promenade over the tunnel section. Terrace and promenade are lighted by Crouse-Hinds wall fixtures mounted 3 feet above the walk and equipped with 115-watt lamps. The twin tunnels are lighted by 321 special ceiling-mounted fixtures containing 230-watt lamps, producing an average illumination of 1.5 foot-candles and throwing the light ahead of the driver and not into his eyes. The tunnel light control consists of three to five relays operated by two reverse-connected astronomic time switches, all enclosed in control panel boxes mounted on the tunnel walls. The relays are connected on the service side to city-owned manholes (there are six) by four rubber-insulated lead-covered No. 00 cables in 3-inch conduit, and to the loadside by 00 and No. 2 cables in 1¼- and 2-inch conduit. The overpasses and their ramps and staircases are lighted by 225 Daunt davit-type posts and luminaires with 115-watt lamps.

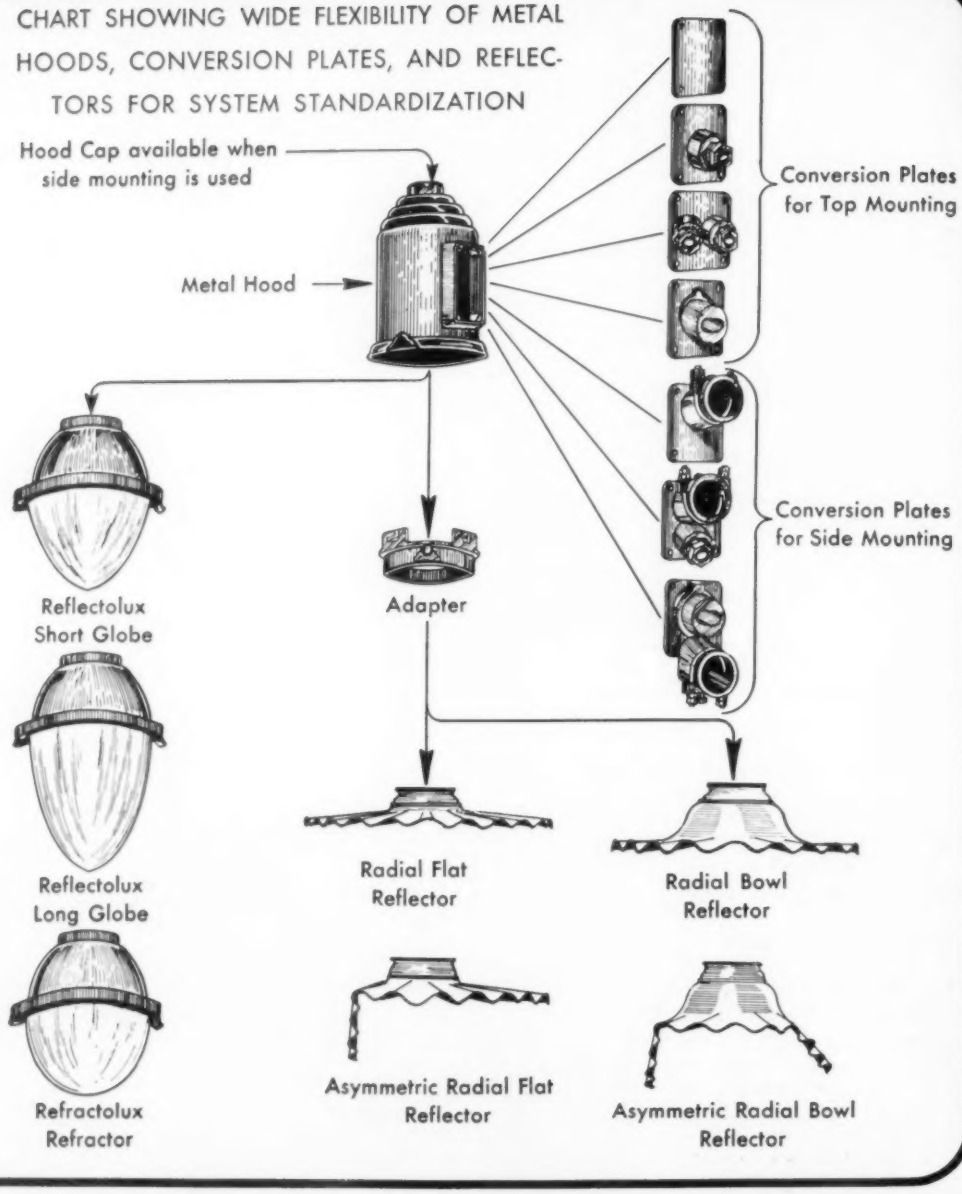


FROM NEW YORK TIMES OF JUNE 3, 1940

At Upper Left, East River Drive, with New Municipal Swimming Pool in John Jay Park at 78th Street, New York

SYSTEM STANDARDIZATION with Westinghouse METAL HOOD LUMINAIRES

CHART SHOWING WIDE FLEXIBILITY OF METAL HOODS, CONVERSION PLATES, AND REFLECTORS FOR SYSTEM STANDARDIZATION



New Westinghouse Metal Hood Luminaires with multiple-styled conversion plates offer complete flexibility for every community and city. Progressive modernization of street lighting equipment is now possible even with limited appropriations . . . up-to-the-minute TRAFFIC SAFETY LIGHTING at minimum cost. Ask at your nearest Westinghouse Sales Office for complete information, or write Westinghouse Electric & Manufacturing Company, Lighting Division, Edgewater Park, Cleveland, Ohio.

Westinghouse Lighting Equipment

Improving Municipal Administration

Current Items from the Public Administration Clearing House

How Long Do Local Officials Hold Their Jobs?

SUPERINTENDENTS OF SCHOOLS, librarians and city clerks hold their jobs longer than any of the other administrative officials of local government, the International City Managers' Association reports. The largest turnover occurs usually in the positions of mayor, health officer, director of public works, chief finance officer and chief of police, in that order.

The report, covering 11 chief administrative offices of all cities of more than 10,000 population, shows there was a turnover of 17.3 per cent in these positions in 1939. The turnover in 1937 and 1935 was 18.9 and 19.7 per cent respectively. In the even-numbered years, the turnover was somewhat lower—15.5 per cent in 1938 and 14.1 per cent in 1936.

Nine Cities Pay Laborers on Yearly Basis

YEARLY INSTEAD OF HOURLY WAGES are being paid municipal laborers in a number of cities, the International City Managers' Association reports. The new practice is an advantage to laborers receiving relatively low earnings, making it easier for them to budget expenses, the report said.

The cities which have put practically all laborers and skilled trades employees on a monthly or annual pay basis include Buffalo, Everett, Wash., the Los Angeles School District, Milwaukee, Rockford, Ill., Sacramento, Seattle, Ventura, Calif., and Wichita Falls, Texas. These cities give such employees two weeks' annual vacation with pay.

Skilled workers and laborers in Chicago, Detroit, Escanaba, Minneapolis, New York City, San Francisco, and Schenectady are generally paid on an hourly or a daily basis, but are granted vacations with pay. In Minneapolis, seasonal and intermittent employees who have been on the city payroll for five years or more and who work on a pro rata basis six months or longer in any year are given vacations of one day for each month employed, the report said.

Milwaukee has one of the most comprehensive annual wage systems, according to the report. Unskilled laborers who do ash collection, street cleaning and general clean-up work have been on an annual pay basis since 1935. They receive $1,380 a year. In recent years, one class of laborers after another has been put on a monthly pay basis, until now about 65 per cent of the 1,200 to 1,500 unskilled laborers work on yearly or monthly wages. About 15 per cent are still paid by the hour, although they work the year around, while the remaining 20 per cent are seasonal workers paid by the hour.

Milwaukee laborers report for work daily, Monday through Friday. They lose no pay if bad weather or other conditions make it impossible to work, but generally make up lost time on emergency assignments. Employees paid by the hour get two weeks' vacation with pay if there is no more than 30 consecutive days' intermission in employment. Otherwise they receive one day's vacation for each month worked.

California Cities Find "Absentee Parking Tag" Law Helpful

CALIFORNIA'S "ABSENTEE PARKING TAG" LAW, which makes an automobile owner liable for parking violations regardless of who has parked his car, is providing six cities with a better check on erring motorists, the American Municipal Association reports. Before the law was passed, it was necessary for the police officer personally to "tag" overparking violators, and secure their signatures on the citation. Traffic tags placed on cars without personal presentation to the driver frequently were ignored or torn up, according to the report.

Under the new "prima facie" statute, which became effective in September, 1939, proof that the vehicle was parked in violation of the law, and that the defendant was the registered owner, is prima facie evidence that the registered owner was the one who parked illegally. The police officer now can tag the overtime-parked vehicle, and have a notice sent to the registered owner to appear in court. If he fails to appear, a warrant is sent out for his arrest.

While the increased number of citations calls for a large amount of clerical work and sometimes overfills the courts, the cities expressed general satisfaction with the prima facie law as a means of controlling illegal parking, according to the League of California Cities, which made the report. Results were gathered from San Francisco, Los Angeles, Oakland, Berkeley, Sacramento and San Diego.

The San Francisco Police Department started an intensive drive to clear up traffic congestion in the downtown section when the new law went into effect. As a result, 45,000 tags were issued in one month for all types of traffic violations, about half of which depended for validity on the new section of the vehicle code. Few warrants of arrest have been necessary.

In Los Angeles, up to February 9, 1940, a total of 56,844 citations had passed through the Police Department. More than 60 per cent of the offenders came into the Fines Bureau of the Municipal Court, deposited, and then forfeited without appearance, bail of $2 to $3. Warrants were issued in only 3,005 cases.

Oakland has issued around 3,500 tags a month, with about 20 per cent resulting in bail deposits, and another 20 per cent demanding warrants. Berkeley reported that 4,578 traffic tags issued during the first five months brought all but 282 parking offenders into the station. Warrants had to be issued in only 93 of the 282 cases.

In four months, Sacramento issued a total of 3,767 tags and 161 warrants. San Diego reported an average of 1,950 citations monthly to motorists, approximately 75 per cent of whom posted bail within five days. Notices mailed to the remainder drew about 60 per cent response, and an average of only 50 warrants were issued each month.

East Cleveland, Ohio, Installs Fire Cadet System

TWO CADET FIREMEN are working for the Fire Department of East Cleveland, under a new system adopted by the Cleveland suburb to attract recent high-school graduates into the fire service, reports the International City Managers' Association. The plan seeks graduates between the ages of 18 and 21, who take a civil service examination similar to that given regular firemen for appointment. Cadets have the same duties as regular firemen and are subject to all Department rules, except that they are not required to purchase the regulation uniform. At the end of a three-year period they become eligible for appointment as regular firemen, with no further examination.

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*General Electric—form 79R used on Genesee St., Utica, New York.

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other than a physical test. The cadet receives $80 a month as salary in the first year, $100 a month the second year, and $125 the third. If he becomes a regular fireman, his pay starts at $150 a month and increases to $200 a month in the fifth year.

The value of the apprentice plan is in its aid in recruiting better firemen and the establishment of a longer probation period. Formerly, the age requirement for applicants for a fireman's position was 21 to 30 years, and many applicants were men who had already failed at one or more jobs or who had been steadily unemployed and turned to the position of fireman as a last resort. With a three-year apprenticeship, the fire chief and the city manager will have more opportunity to ascertain the fitness of recruits for work as regular firemen before they are finally added to the force. The cadets are expected to take advantage of local opportunities for further schooling.

Inter-Municipal Cooperation in Pan American Republics

THE MOVEMENT TOWARD COOPERATION among the municipalities of the 21 American republics has produced definite results in the creation of a national union of cities in Costa Rica and the appointment of organizing committees for such unions in five other countries, the American Municipal Association reports.

Since the Pan American Commission on Intermunicipal Cooperation held its first meeting in Chicago last November, its President, Dr. Antonio Beruff Mendieta, of Havana, Cuba, has appointed organizing or liaison committees for Argentina, Brazil, Costa Rica, the Dominican Republic, El Salvador, and Haiti. The Costa Rican national municipal union held its first Congress of Municipalities in San José in March. National unions of municipalities had already been set up in Cuba and the Dominican Republic.

Cooperation among city governments of different countries can help to further international good-will, the American Municipal Association points out. The Association is linked through membership in a special American committee with the International Union of Local Authorities, which has headquarters at Brussels. Every effort is being made to maintain collaboration with the International Union in spite of war-time difficulties.

The first national union or league of city governments was founded in Norway in 1838. Since that time, municipalities in the leading countries of the world have organized leagues or associations to help solve their common problems.

The Pan American Commission on Intermunicipal Cooperation was established by act of the first Pan American Congress of Municipalities, which met in Havana in November, 1938. The Congress was founded with the approval of the Pan American Union.

The heads of the organizing committees in the various countries are: Argentina—Luis L. Boffi, member of the Council of Buenos Aires; Brazil—Edison J. Passos, Secretary of the Department of Public Works of the Federal District (Rio de Janeiro) of Brazil; Costa Rica—Manuel Rodó, Governor of the province and Mayor of the city of San José; Dominican Republic—V. Alvarez Pina, President of the Administrative Council of the district of Santo Domingo; El Salvador — José María Melara, Mayor of San Salvador; and Haiti — Raphael Brouard, Mayor of Port-au-Prince.

City Demands Used Car Guarantee After Student Is Killed

THE ACCIDENTAL DEATH of a high-school student in a newly purchased second-hand car with defective brakes led in double-quick time to a new ordinance for New Rochelle, N. Y., on used-car sales, the American Municipal Association reports.

The ordinance, passed almost as soon as the coroner's verdict was heard, forbids the sale, either by individuals or by dealers, of second-hand cars which are mechanically defective, under penalty of a $100 fine. Each seller must give to each car purchaser a certificate of mechanical perfection stating that the car meets all safety requirements.

The law went into effect May 15, and is expected to receive strict enforcement.

City Manager Appointments

L. P. Cookingham, City Manager of Saginaw, Mich., since 1936, has been appointed City Manager of Kansas City, Mo.

C. C. Congdon, former Manager of Milton and Shillington, Pa., has been appointed Manager of the village of Bellows Falls and the town of Rockingham, Vt., effective May 1. He succeeds Morton F. Downing, who is retiring.

Fred C. Greaves of Sherman, Maine, has been appointed Town Manager of Hodgdon and Linneus, Maine, two adjoining communities.

Raymond Edmonds, City Clerk for the past 14 years, has been appointed City Manager of Beaumont, Texas.

Fred L. Williams has returned to his old post as Manager of Pawhuska, Okla., where J. N. Neelly has been serving during the past year.

George F. Miller, Village Superintendent, has been appointed first Manager of the town and village of Randolph, Vt.

Steve Matthews, City Manager of Borger, Texas, has been appointed City Manager of Pampa, Texas, to succeed W. T. Williamson.

L. M. Davis, former Mayor, has been appointed City Manager of Borger, Texas, to succeed Steve Matthews.

Frank Clough has been appointed City Manager of South Pasadena, Calif., to succeed Burton A. Garlinghouse.

Carl H. Peterson, City Manager of Muskegon, and former Manager of Mt. Pleasant and Ferndale, has been appointed City Manager of Saginaw, Mich., to succeed L. P. Cookingham, recently promoted to Kansas City. Mr. Peterson's appointment is effective June 1.

W. Morgan Works, City Manager of Sherman, Texas, for the past 8 years, has been appointed City Manager of Longview, Texas. He succeeds Bill N. Taylor, recently appointed to Port Arthur.

James W. Armstrong, Collector of Revenues for the city, has been appointed City Manager of Charlotte, N. C., to succeed James B. Marshall, who has resigned, effective June 1, to enter private business.

CLARENCE E. RIDLEY,
Executive Director, International City Managers' Association.

The Municipal Bond Market

Recent sales of new issues from May numbers of *The Bond Buyer*:

Amount	Borrower and Purpose	Rate (%)	Term (Years)	Basis (%)
$100,000	Scarsdale, N. Y., Highway Improvement	.40	2 Avg.	.39
170,000	Auburn, N. Y., Home Relief	1.10	5.85 Avg.	1.03
149,000	Kansas City, Kans., General Improvement	1.5	5.5 Avg.	1.19
105,000	Sioux City, Iowa, Flood Protection	1.5	13.5 Avg.	1.46
190,000	Kalamazoo Co., Mich., Court-House and Jail Refunding	1.5	?-11 O.-A.	1.48
117,000	Algona, Iowa, School, Refunding	1.75	5.75 Avg.	1.56
130,000	Thief River Falls, Minn., Electric Light Plant	2	7.85 Avg.	1.93
100,000	Jeffersonville, Ind., Flood Control	2.25	11.33 Avg.	2.24
160,000	Sandusky, Ohio, Sewer	2.25	13.85 Avg.	2.33
149,000	Rahway, N. J., Water System Extension	2.5	12.17 Avg.	2.39
168,000	Portsmouth, Ohio, General Refunding	2.25	10.33 Avg.	2.43
150,000	Mt. Vernon, N. Y., Public Works Projects	3	1-10 Ser.	3
120,000	Paintsville, Ky., Water-Works Revenue	3.25	?-11.25 O.-A.	3.24

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4. Karpark Parking Meters ☐
5. Horni Fire Alarm Equipment ☐

Name.....

Title or Occupation.....

Street.....

City.....

Prepared by
FRANK B. WILLIAMS
Author of "The Law of City Planning and Zoning"

Zoning and Planning Notes

With the cooperation of
EDWARD M. BASSETT
Author of "Zoning" and of "The Master Plan"

Airports—Nuisance

CALIFORNIA.—*United Airports Company of California, Ltd., v. Hinman, et al., Southern District of California, Central Division (April, 1939), unreported.* The plaintiff was the owner and operator of a privately owned airport, with the legal status of a public utility. The defendants were the owners of an adjoining large acreage tract used mainly for agricultural purposes. The owners of this Hinman tract, desiring to create obstructions to the use of the airport for the purpose, as found by the Court, of getting the airport company to buy the land at an excessive price, were proceeding with the erection of a derrick purported to be for well water and a series of poles 20 feet high along the line of the boundary between the Hinman tract and the airport.

The action was for injunction, and the Court by its order of injunction specified the heights to which the Hinman tract owners could go with their poles and other structures within distances from the airport designated in the injunction order.

This is obviously not a zoning case, and the word "zoning" does not occur in the statement of facts or opinion. There was no statute or ordinance. The case therefore has no relationship to the decision in the Maryland case of *Mutual Chemical Company v. Mayor and City Council of Baltimore et al.*, which was digested in the *News Letter* of September, 1939.*

The Court expressly treated the case as one for injunction of a public and private nuisance.

This case has been included in these notes solely because, in discussions of the case elsewhere, it has been referred to as though it bore some relationship to the subject of "airport zoning." The true meaning of zoning is what we call comprehensive zoning, in which the whole territory of the zoned community is divided into districts and regulated for all types of structures and uses. The expression "airport zoning" for a measure which regulates an area around an airport solely with reference to the airport is a self-contradiction. No case on that portion of a zoning ordinance or statute which regulated the territory adjoining an airport has yet arisen in the courts—that is, there has been no zoning case on the subject.

* EDITOR'S NOTE.—And in our Notes for July, 1939.

Zoning Ordinance—Residential District

ILLINOIS.—*Taylor et al v. Village of Glencoe*, 372 Ill. 507 (Supreme Court, February 7, 1940).—The plaintiffs in this case seek an injunction against the enforcement as to their property of the provisions of the zoning ordinance of the village of Glencoe which prohibited the use of their property for anything but residential purposes. The district was classified as "C" residential, in which only single-family dwellings were allowed. The plaintiffs wish to put their property to commercial or business use.

A majority of the Court decides in favor of the plaintiffs, because the property in question is virtually surrounded by commercial uses; with two gasoline stations across the street in the village of Winnetka. There is no question of the contemplated commercial or industrial use of plaintiffs' property damaging nearby residential property, since existing uses of this sort have been here, nearby, for many years. The plaintiffs' property is four times as valuable for commerce as it is for residence. In the opinion of a majority of the Court, therefore, the zoning ordinance in this respect as applied to plaintiffs is unreasonable and the village should be enjoined from enforcing it as to them.

Two justices dissented on the ground that a consideration of the community as a whole indicated the ordinance was not clearly shown to be unreasonable.

Junk Yard

NEW JERSEY.—*Grace Iron & Steel Corporation v. Ackerman, Building Superintendent of the city of Passaic*, 7 Atl. 2d. 820 (Supreme Court, July 27, 1939).—The question at issue is the propriety of municipal action denying an application for permission to occupy and use a tract of land (with no buildings on it except a small "telephone shack") for the loading of scrap iron and steel on scows and storage. The application was denied on the ground that in the zone in which the lot was situated this business, which is classified as a "junk yard," is not permitted.

The question is whether the use is that of a junk yard, and in the opinion of the Court, it is not.

The decision of the Supreme Court states in part:

"The term 'junk' . . . denotes old iron, glass, paper, cordage, or other waste which may be treated so as to be used again in some form; also, any old or discarded material, as metal, paper, rags, etc., and, in general, anything that is regarded as worthless or merely trash. . . . The modern definition of 'junk shop' is 'the shop or place of business of a junkman.' . . . It is a place 'where odds and ends are purchased and sold; a store where old metals, ropes, rags, etc., are bought and sold.'

". . . While the term has other and more general uses than those above outlined, I am of the view that, considered in the light of the context, the conjoined words 'junk yard' are not susceptible of a broader meaning than a place where the 'junk business' is carried on as such. Otherwise, the mere storage of material answering the description of 'junk' would bring the premises within the interdicted class. If that were so, storage of such material on a wharf or dock, preparatory to shipment, would constitute the premises a 'junk yard.' Certainly, this was not the intent of the ordinance; at least, this all-embracive definition, assuming the power thus to legislate, is not to be accepted in the absence of language unmistakably denoting that purpose. The mere 'deposit' of material so classified, preliminary to loading on vessels for shipment, does not suffice to bring the premises within either the letter or the spirit of the ordinance. . . . The designed use is in the nature of stevedoring rather than the maintenance of a 'junk yard'; and the denial of a certificate of occupancy for this purpose was therefore in contravention of the ordinance and otherwise without authority in law."

Gasoline Station — Public School — Unrestricted Use District

NEW YORK.—*Matter of Brochausen (Murdock)*, reported in *New York Law Journal*, January 7, 1939.—In denying an application for the erection of a gasoline station in the same block with a public school in an unrestricted use district, the Court says in part: "It is evident that the danger to school children is as real in an unrestricted area as it is in a restricted district. Section 21 of the (New York City) Building Zone Resolution was framed for the safety, health and protection of school children. This section therefore must be liberally construed in favor of the public for whose benefit it was enacted."

Trailers

NEW YORK. *People v. Olcott*, 173 Misc. 87 (City Court of Rochester, December 22, 1939).—An ordinance of the city of Rochester provides that no trailer shall be used as a residence for more than 48 hours without a permit, which may be revoked at any time. The defendants, husband and wife, have been arrested for using the trailer in question for a year without a permit. The trailer is not used contrary to any sanitary, zoning, or other regulation of the city. Permits for occupancy are not required by the city in any other class of structures.

Held that the ordinance was invalid.

Airport Zoning Legislation

A useful "Survey of State Airport Zoning Legislation," Report No. 6, June, 1939, written by John M. Hunter, of the Airport Section, has been issued by the Civil Aeronautics Authority, Technical Development Division, Washington, D. C.

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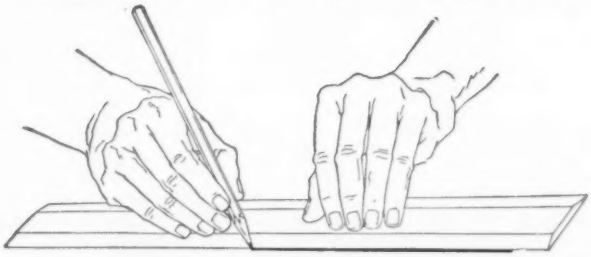

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Zoning—Non-Conforming Use

NEW YORK.—*Mercus v. Village of Mamaroneck*, 16 N. Y. S. 626 (App. Div. Jan. 21, 1940).—The property in question was a non-conforming beach or bathing club, being operated for profit.

Held by the Court that the furnishing of refreshments, incidental entertainment and opportunities for social activities were permissible incidental uses and that the enlargement of these features, within the limits allowed by the ordinance for the extension of non-conforming uses was therefore legitimate and lawful and was not tantamount to converting the club into another use, such as a night club.

Zoning Ordinance—Variance

NEW YORK.—*Otto v. Steinhilber*, 11 N. Y. S. 2d, 910 (App. Div. of Supreme Court, May 8, 1939).—The property in question was a parcel of land in the village of Lynbrook containing over 5 acres, with a frontage on Merrick Road of 599 feet and with a depth varying from 495 to 614 feet. The property was zoned for business to a depth of 150 feet from the road, and the remainder was zoned residential. The owner applied under the variance clause for permission to utilize the entire parcel for a roller skating rink and accessory uses, which the ordinance permitted in the business zone but excluded from the residential zone. The owner's plan contemplated utilizing little of his business zone, but encroaching upon the residential zone to the extent of 300 feet. The Board of Appeals granted the application. Neighboring property owners brought proceedings in court to review this permit.

The majority of the Court affirmed the decision of the Board under the hardship variance clause. Its opinion was only a few lines in length and contained neither a statement of the facts nor any discussion. It would be difficult to conceive of any statement of facts or law which would support the decision. The facts are stated in the dissenting opinion, which pointed out that the action of the Board was an exercise of legislative power under the guise of a variance.

EDITOR'S NOTE.—From the *News Letter* of the American Society of Planning Officials. The heading for it there is: "Oh What a Variance."

Residential District—Non-Conforming Use

NEW YORK.—*Matter of Radano* (Miltner et al), Supreme Court, Kings County, reported in *New York Law Journal*, April 11, 1940, p. 1648.—Mrs. Radano is the owner of a restaurant in the town of Huntington. In connection with the operation of that business, and prior to June 26, 1931, and until recently, she has maintained a wooden stand about 96 square feet in area for the sale of food and soft drinks in front of the main restaurant building. For the use of patrons, tables, chairs, some of which were covered by large umbrellas, surrounded the stand and covered an area of about 100 by 50 feet.

On June 26, 1931, the zoning ordinance of the town was adopted, and Mrs. Radano's property thereupon became located within a residence district. The ordinance provided for the continuance of the non-conforming use of land and buildings, "and such use may be extended throughout the building or structure, but not the land, lawfully acquired previous to said date."

Mrs. Radano alleges that recently this wooden platform became "rotten and dangerous for use" and that therefore it was "replaced" by a concrete platform. The term "replacement," however, is not accurate, since the new concrete platform measures something like 30 by 16 feet, comprising an area of some 480 square feet, which substantially exceeds the area of the original wooden platform.

In support of her application for a permit, Mrs. Radano claims that since the land upon a portion of which the concrete platform is now placed was itself used for restaurant purposes prior to 1931, she is therefore entitled now to enclose the platform for its more advantageous continuance of the same use.

Held by the Court that the permit should be denied since Mrs. Radano is contemplating not merely a continued use of the unimproved land for restaurant purposes but is seeking in addition a substantial structural enlargement of this original stand for her business.

Zoning Ordinance—Residential District

TEXAS.—*City of West University Place v. Ellis*, 134 S. E. 2d, 1038 (Commission of Appeals, Section A, January 3, 1940).—This suit was brought to enjoin the defendant Ellis from constructing a business structure on his lot in a residential district. The Court finds that the ordinance, so requiring, is invalid as to defendant; that his lot was valuable only as business property; that the lot was naturally and in fact within the de facto business portion of the city; that the placing of this lot in a residential district is not essential to the plan as a whole.

The importance of any particular lot to a general zoning scheme may be determined partly by whether or not such property comes within any of the exceptions allowed by the ordinance. Under the ordinance the Board of Adjustment may make exceptions as follows:

"(1) Permit the extension of a building or use into a more restricted district immediately adjacent thereto, but more than 50 feet beyond the boundary line of the district in which such building or use is authorized.

"(2) Permit in any district such modification of the requirements of these regulations as such board may deem necessary to secure an appropriate development of a lot where, adjacent to such lot on two or more sides, there are buildings that do not conform to these regulations."

It appears from the proof in this case that defendant is almost entitled to an exception as a matter of law. At any rate, in view of these exceptions, there is ample proof to sustain a finding that the placing of this lot in a residential district is not an essential part of the general scheme, and that the protection afforded to the general public by its inclusion therein is negligible when compared to the manifest depreciation in the value of the lot by excluding it from the business district.

Zoning—Reasonableness

WISCONSIN.—*Geisenfeld v. Village of Shorewood*,* 287 N. W. 683 (Supreme Court, October 10, 1939).—*The courts will not sustain an unreasonable zoning classification.* Although the courts have said that the exercise of the zoning power is a matter of legislative discretion and that decisions of the municipal legislatures are not usually subject to judicial review, they have repeatedly insisted that there are limits to legislative discretion which must not be exceeded. The difficulty in this class of cases is to determine what facts are sufficient to establish unreasonability.

The plaintiff's property in the present case was zoned for residence. The property consisted of three vacant lots on one of the main streets in the village of Shorewood, Wis. The street was zoned for business up to the block where the three lots were located, and a portion of the block beyond was also zoned for business. The trial court decided that the plaintiff's property was at the time of the adoption of the ordinance in the heart of an apartment and business district, and that the residential classification for the plaintiff's property was adopted without due consideration being given to the natural development of the village in the area surrounding the plaintiff's property, and that consequently it was arbitrary and unreasonable. The Supreme Court held that the undisputed physical facts justified the conclusion of the trial court and that consequently the municipal legislature of Shorewood had exceeded the bounds of legislative discretion and the ordinance was *in respect to the plaintiff's property* unconstitutional and void.

* From *Planning and Civic Comment.*

Flood Plain Zoning

Henry C. Klein, Chairman of the Committee on City Planning and Zoning of the National Fire Protection Association, has prepared a timely and suggestive pamphlet entitled "Flood Plain Zoning and Evacuation," which has been reprinted by the Conference of Special Risk Underwriters, 85 John Street, New York, from the Association Quarterly, of April, 1939.

Highest Courts of 24 States Approve Public Housing

The United States Housing Authority reports that Supreme Courts, or courts of last resort, of exactly half the states in the Union now have passed upon and, without exception, have approved local slum-clearance and low-rent public housing programs assisted by the USHA. This unbroken string of favorable decisions has been attained in the highest tribunals of 24 of the 38 states having state public housing laws. In these suits, the local housing programs have been attacked from almost every possible legal angle.

A recent decision by the Supreme Court of the state of Arizona brought the number of these high judicial opinions up to 33 cases involving the various points of contention litigated in the 24 states. These decisions have, in general, held public housing to be clearly within the purview of the United States Constitution, and the respective state constitutions and municipal charters.

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Municipal Law Notes and Decisions

Prepared by NATIONAL INSTITUTE OF MUNICIPAL LAW OFFICERS, Washington, D. C.
JOHN A. McINTIRE and CHARLES S. RHYNE, Legal Counsel

Administrative Law—Offices—City Council

Performance of the functions of a Board of Equalization by the City Council is an assumption of an additional burden on themselves not incompatible with their duties as councilmen. The Council's action as a de facto board was held not subject to attack. *Burson* v. *City of Silverton*, 138 S. W. (2d) 921 (Tex. 1940).

Bids—Mistake

A village could not accept a bid in which a $6,000 mistake had been made, even though not discovered until after the bids had been opened, when it was not made through the negligence of the bidder. *Krasin* v. *Village of Almond*, 290 N. W. 152 (Wis., Feb. 13, 1940).

Bonds

Special assessment bonds issued as obligations payable out of funds to be collected from the proceeds of the assessment only were not general debts of the city, but the city was bound to use due care to collect the assessments, and for its negligent failure to do so it is liable generally for the full amount of the bonds. *Palmer* v. *City of Erie*, 9 Atl. (2d) 378 (Pa., 1939).

Condemnation—Taxes

Taxes paid for the second half of the year by a taxpayer are recoverable in spite of voluntary payment where city takes land by condemnation proceedings prior to commencement of second half of tax year. The charter provision shows the policy to be to apportion the taxes as of the date of vesting the title. *Berri* v. *City of New York*, 16 N. Y. S. (2d) 86 (City Ct. of N. Y., 1939).

Housing

Housing Authority Law of Massachusetts proposing expenditure of public funds contemplates expenditure for a "public use" and is a valid exercise of the police power. The law properly conferred eminent domain powers on local housing authorities. *Allydonn Realty Corp.* v. *Holyoke Housing Authority*, 23 N. E. (2d) 665 (Mass., Nov. 21, 1939). In accord: *Barber* v. *Housing Authority of City of Rome*, 5 S. E. (2d) 425, (Ga., Oct. 27, 1939). In *Hogg* v. *Housing Authority of City of Rome*, 5 S. E. (2d) 431 (Ga., Oct. 27, 1939), the Court held that owners of land sought to be condemned for a housing project could not challenge the city's use of Federal funds for a housing project.

Junk Yards—Regulation

An ordinance regulating size of ground area and street frontage to be used as junk yards is a valid exercise of the police power to secure the public interest in view of the objectionable features of junk yards and their liability to endanger public health and safety. *Vassallo* v. *Board of Commissioners of City of Orange*, 11 A. (2d) 250 (Feb. 9, 1940, N. J.).

Offices—Police Commissioner—Power to Create

In absence of a specific provision of statute or charter to the contrary, the city of Charlotte had power to create position or office of commissioner of police and to provide for his compensation. *Riddle* v. *Ledbetter, Treasurer*, 5 S. E. (2d) 543 (N. C., Nov. 22, 1939).

Pedestrians—Street Crossing

Holding that a pedestrian is not confined in crossing a street to intersections, either at night or in the daytime, but is entitled to assume that the condition of the street is safe for travel, the Court of Appeals of New York held for the jury the question of negligence of the city in causing an injury where pedestrian slipped on oil and fell in crossing 60 feet from the intersection and 4 feet from the curb. *Carr* v. *City of New York*, 24 N. E. (2d) 131 (N. Y., 1939).

Pensions—Police Officer—Murder

A former member of the police force of Jersey City, N. J., serving a sentence for murder was not entitled to a pension under a statute providing that no pension should be paid to one confined in a penal institute as a result of committing a crime involving moral turpitude. The fact that the pension was granted prior to the passage of the statute was immaterial, as there was no vested right in a pension. It was merely a gratuity and not a contract. It merely declared a policy to be pursued until the Legislature should ordain otherwise. *Salley* v. *Firemen's and Policemen's Pension Fund Commission*, 11 A. (2d) 244 (N. J., Feb. 13, 1940).

Police—Officers and Employees

A police woman is an employee of the city and not an officer of the city. An action to recover a salary after she was wrongfully discharged must be brought by action for breach of contract of employment, and not by mandamus. *City of Evansville* v. *Maddox*, 25 N. E. (2d) 321 (Ind., Feb. 19, 1940).

Public Works—Architects' Fees

A city contract to pay architects' fees according to the schedule established by the American Institute of Architects is enforceable as to a swimming pool project to be financed with the aid of WPA in spite of the fact that the schedule does not refer directly or indirectly to WPA projects. *Frank Grad and Sons* v. *City of Newark*, 9 Atl. (2d) 676 (N. J., 1939).

Revenue Bonds—Delegation of Control of Property to Private Persons

The ordinance of the township of Abington, Pa., providing for the issuance of non-debt revenue bonds in payment for a sewage system, and for operation of the system by a private corporation in case of defaults, violates the state constitutional provision forbidding the delegation of any power to interfere with any municipal improvement to any private corporation. A dissenting justice takes the position that the sewage system is a proprietary activity and that the constitutional prohibition is to be construed as applicable only to governmental functions. *Lighton* v. *Abington Township*, 9 Atl. (2d) 609 (Pa., 1939). See also, *Tranter* v. *Allegheny County Authority*, 173 Atl. 289 (Pa.), and *Kelley* v. *Earle*, 190 Atl. 140 (Pa.)

Salaries—Overtime—State Budget Policy

A New York ordinance providing that four hours' work on Saturday should be a full day's work, and that overtime should merit compensation, is contrary to the budget policy of the state. The ordinance as an expression of the Board of Aldermen alone, in which the Board of Estimate and Apportionment did not concur, is not valid authority for the payment of extra compensation. The Board of Aldermen does not have power to increase salaries or compensation fixed by the budget. *Hagen* v. *Moses*, 17 N. Y. S. (2d) 423 (N. Y. Dec. 12, 1939).

Sidewalks—Duty to Maintain

The duty to maintain the sidewalks in a safe condition extends to the entire sidewalk, and the question of whether a park bench which was near the sidewalk is an obstruction so as to constitute negligence if allowed to remain there, is one of fact for the jury. *Higgins* v. *City of Boulder*, 98 P. (2d) 996 (Colo. Jan. 22, 1940).

Special Assessments—Sewers

Constitutional provision permitting special assessments for "use" of sewers means "actual use" and renders invalid an assessment for "privilege of using." *Southern Ry. Co.* v. *City of Richmond*, 8 S. E. (2d) 271 (Va. 1940).

Streets—Safe Place Statutes

A street is held not a place of employment within the safe place of employment statute, in an action by a pedestrian against the city for a tort. Distinguished are cases where an employee was working in the street, when it would be a place of employment. *Padley* v. *Village of Lodi*, 290 N. W. 136 (Wis., Feb. 13, 1940).

Tax Anticipation Warrants—Repeal of Authority

A note issued by a county under legislative authorization to obtain money for poor relief in anticipation of state revenues is a valid obligation. A subsequent statute which repealed the authority was ineffectual to alter vested rights under the note. *State ex rel. City of Youngstown*, 24 N. E. (2d) 442 (Ohio, Dec. 13, 1939).

Taxes—Recovery When Paid by Mistake

City taxes voluntarily paid under over-assessments on real estate could not be recovered when error was result of inaccurate description of the real estate in tax lists furnished by plaintiff, and plaintiff had been negligent in not checking available public records. *Bridgeport Screw Co. v. City of Bridgeport*, 7 Atl. (2d) 649 (Conn.).

Torts—Escaping Water

A city was held liable where water which escaped from the city water mains because of a defective connection was the proximate cause of the damage to the foundation of the building where the water-soaked condition made the foundation more attractive for fungus growths and termites. *City of Muskogee* v. *Turner*, 98 P. (2d) 1095 (Okla. Jan. 23, 1940).

Torts—Governmental Functions

Where police of the city of Berwyn were driving a squad car in pursuit of a car suspected of being one driven by fugitive murderers as described in an immediate police broadcast, the officers were acting in a governmental capacity even where they were driving within the territory of another municipality. The city was held not liable for the death of a pedestrian who was struck by a Ward Baking truck as a result of impact of the police car. *Taylor* v. *City of Berwyn*, 22 N. E. (2d) 930 (Ill. Oct. 10, 1939).

Liability for Injury to Prisoner

Town is not liable to prisoner who is injured by the act of another prisoner in wrapping him in blankets and setting fire to him even where the police officer who incarcerated the second prisoner did not search him for matches and was otherwise negligent. There is no duty owed by the officer to the first prisoner and no causal connection between alleged conditions of the prison and the injuries. *Parks* v. *Town of Princeton*, 8 S. E. (2d 217 (N. C. 1940).

Torts—Sidewalks—Inclined Approach

A slight incline in the approach to a temporary sidewalk is not negligence where the degree of the slope is such that danger could not be anticipated. *Ballard* v. *Manhattan Construction Co.*, 98 P. (2d) 1112 (Okla. Feb. 6, 1940).

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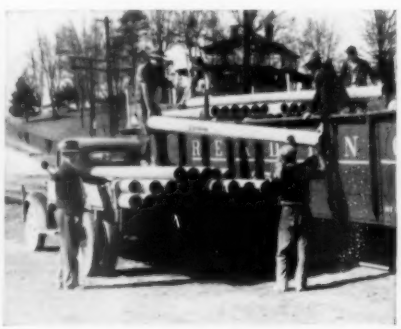

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Roads of the Future

Magic Motorways.—By Norman Bel Geddes. Random House, New York. 1940. 297 *pp.* $3.50.

That glimpse into the future which five million people had at the Futurama of the General Motors exhibit at the New York World's Fair last summer is explained more fully in this strikingly illustrated book on the same subject. No congestion, no traffic jams, no parking problem, no pedestrian problem, cars traveling at 100 miles an hour without accidents and going across the whole breadth of the land in 24 hours, a city's commuting radius extended six times,—these are some of the seemingly fantastic prophecies made by this book, which outlines the history of traffic and road development, presents future revolutionary changes in highway and traffic planning which will solve present problems and vastly facilitate transportation and traffic, and pictures the results these changes will have on American life. Separated lanes of traffic, problems of intersections and bottlenecks, highway lighting, cross-country freeways, are among the subjects discussed. Three chapters deal with the special traffic and street-design problems of the city.

Sewage Conference

Ohio Conference on Sewage Treatment, held at Toledo, Ohio, Oct. 5-6, 1939.—The Conference, Room 302, Departments of State Building, Columbus, Ohio. 1940. 149 *pp.* $1.25.

Major technical papers among others published in this report are: "Activated Sludge Control"; "The Ohio River Pollution Survey-Methods and Progress"; "Administration of Sewage Works"; Discussion of Civil Service"; and "A Study of Milk Waste Treatment." Also included are summaries of group discussions, and news from sectional operators' conferences.

Planning Conference

Conference on Planning Problems and Administration, Chicago, Ill., Jan. 18-19, 1940.—American Society of Planning Officials, 1313 E. 60th St., Chicago, Ill. vi + 85 pp. $1.00.

Instead of prepared papers and incidental discussion, this conference consisted entirely of free discussion of eight vital planning topics. Participated in by planners from all over the country, the informal, stimulating discussions published here report experiences in many communities. Topics covered were: relationship of planning agency to executive and legislative bodies; zoning problems; use of tax-abandoned lands; the master plan; the planning agency as a research agency for the mayor, governor, legislative body and other departments; rehabilitation of blighted areas; housing regional decentralization in the administration of Federal activities.

Housing Developments

Housing Yearbook, 1940.— Edited by Coleman Woodbury, Director, National Association of Housing Officials, 1313 E. 60th St., Chicago, Ill. vii + 296 pp. $3.00.

This volume enables those interested in housing to stop, look back and take stock of accomplishments, developments and trends in this fast-moving field. Summarized are the year's activities of the many state and local agencies that have multiplied so rapidly in the last few years; of the USHA—Federal public housing; the FHA—mortgage insurance; the Federal Home Loan Bank Board—private credit for home building and ownership; the FHA—rural housing; the Central Housing Committee—teamwork among the Federal agencies; unofficial housing agencies and committees. Again "NAHO Reviews the Year," NAHO's 1939 activities are outlined, and housing agencies in the country are listed.

Property Taxation

Property Taxes.—Tax Policy League, 299 Broadway, New York. 1940. 300 *pp.* $2.50.

A searching analysis of trends, theories, and administration of real and personal property taxation by persons who have given long and close study to the topics which they discuss.

Trends in Property Taxation are discussed by Leo Day Woodworth, Paul H. Wueller, Lawrence G. Holmes, T. F. Haygood, Donovan F. Emch, Walter P. Fuller, Simeon E. Leland and Alfred G. Buehler.

Theories of Property Taxation are discussed by Harold S. Buttenheim, Clarence Heer, Edwin H. Spengler, Harold M. Groves, Carl Shoup and C. Lowell Harriss.

Problems of Administration are discussed by John A. Zangerle, Albert W. Noonan, Walter W. Pollock, Frederick L. Bird and George Xanthaky.

The property tax continues to be the most productive American tax and, at the same time one of the most badly administered levies. This volume, focusing attention as it does upon the major problems of property taxation, is therefore highly appropriate.

Tax-Yield Statistics

Tax Yields: 1939.—Tax Policy League, 299 Broadway, New York. 1940. 140 *pp., 90 tables, 22 charts.* $2.50.

The Tax Policy League presents the most complete collection and analysis of tax-yield statistics in one volume yet made available in this country. The book contains tax-yield data for the Federal Government for 10 years (1930-1939 inclusive), classified under 17 major headings and various subheadings, and tax-yield data for the 48 states for 4 years (1936-1939 inclusive), classified under 22 major headings and numerous subheadings. The compilation also includes collection statistics classified by taxes for all Group 1 and Group 2 cities and estimates of tax collections in some 160,000 other local units, classified by units of government and by taxes. For all units of government, the data are also reclassified by types of taxes.

Further tables show percentages of the tax total received from various taxes by the Federal Government and each of the states. Tax yields per capita are also shown for each of the states.

The tables are accompanied by several pages of explanatory text. Numerous charts and graphs further illuminate the basic data.

The preparation of such a volume represents a significant, if not epochal, development in public finance in this country. It is important not only because of the wealth of detail presented, but also because of the carefully thought-out method of classification employed, the clear-cut analysis of the difficulties involved in compiling tax statistics, and the interpretation of tax trends during the last decade.

Industrial Development

Streamlining a City to Attract Industry.—By Herbert S. Swan, Industrial Consultant, 15 Park Row, New York. 1940. 23 *pp.* 25*c, single copy; 20c, 25 or more.*

"No matter how carefully the industrial record of the city may be concealed or hushed up, it still speaks louder than words to every industrial prospect." "Every vacant factory is a structural proof in steel and concrete of past inability to succeed in a community."

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Water Treatment

Manual of Water Quality and Treatment.—Prepared by a Committee of the American Water Works Association, and published by the Association, New York, 1940. 294 *pp.* $3.00 *to non-members,* $2.50 *to members, with a 25-cent discount for payment with order.*

This first edition of the Water Quality and Treatment Manual contains revisions and additions to the Manual of Water Works Practice, published by the Association in June, 1925. It is the result of the effort of a large group of the leaders of water-works thought and practice in the United States, under the guidance of Paul Hansen of Chicago, and Lewis E. Carpenter, of New York. The contents very thoroughly cover available sources of water, types of organisms found in water, the present standards of quality, natural purification, types of treatments preliminary to filtration, the use of coagulants and coagulation as well as chlorine and other chemicals, a study of tastes and odors, the filtration of water, the chemical conditioning of water, and the control of treatment plants. An extensive bibliography at the back of the book is divided under the same subject heads as the chapters. It is a ready reference volume for all water-works officials and operators.

Water Rates

Water Rate Structure in American Cities.—Rates and Research Department, Public Service Commission of Wisconsin, Madison, Wis. 1940. 38 *pp.*

This study is based on abstracts of water department and company rates published in 1934, 1935, and 1939 issues of THE AMERICAN CITY. It continues an analysis of water rates and charges for general service (characteristics of rate schedules, graduated minimum bills and graduated service charges, average length of blocks), and of public and private fire protection service in United States cities of over 10,000 population. Tables are included.

Refuse Collection

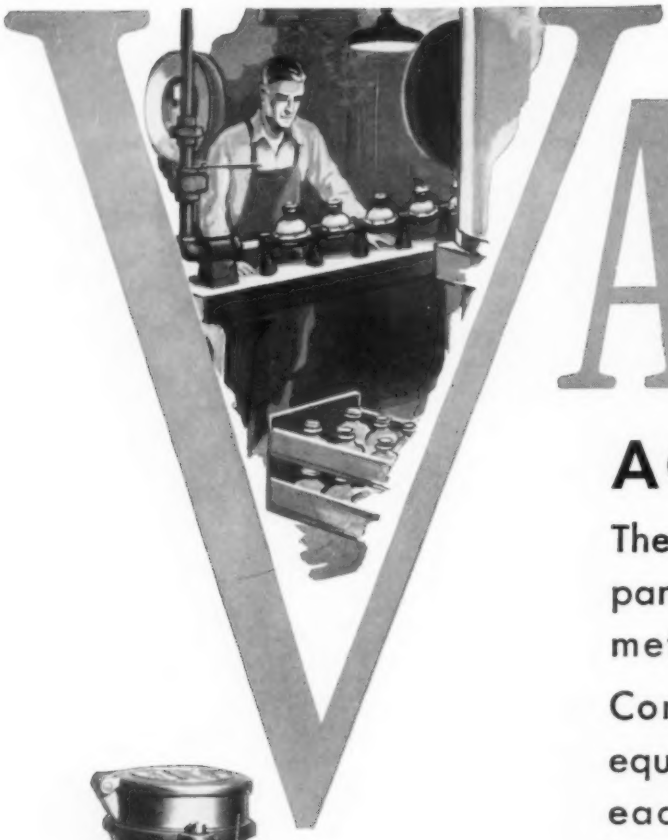
Preparation of Refuse for Collection.—American Public Works Association, 1313 E. 60th St., Chicago, Ill. 1940. 49 *pp.* 50*c.*

The third chapter of "Refuse Collection Practice," a 15-chapter work in preparation by the American Public Works Association, this bulletin is based on the practices of 200 cities. It has to do with municipal regulation and control of the manner in which garbage is stored, prepared and presented for collection by householders, and covers: (1) separation by classes of material; (2) special treatment of garbage, rubbish or ashes, such as draining, wrapping and bundling; (3) proper receptacles for storage; (4) suitable location of receptacles; and (5) the avoidance of excess quantities. Ordinances, public education and enforcement for these regulations are considered.

Government Labor Relations

One Thousand Strikes of Government Employees.—By David Ziskind, Ph.D. Columbia University Press, Morningside Heights, New York. 1940. 279 *pp.* $3.00.

A field of labor economics hitherto practically ignored is the subject of this study of 1,119 strikes in American government employment—a reasonably complete coverage of all strikes of this type which have occurred. The first main part of the book classifies strikes according to the public function of the strikers—as strikes in public protection, in public education, in public construction and maintenance, etc.—and describes them chronologically. The summary interpretation and critical analysis in the second main section discusses the extent of government strikes, their causes, strike parties and their attitudes, techniques of strikes and settlements, legal aspects, and a general evaluation.



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Fire Insurance

Fire Insurance—From the Beginning to Now.—Aetna Insurance Co., Hartford, Conn. 1940. *36 pp. Free in lots of not more than 25 copies.*

In view of the present lively interest in fire insurance of municipal properties, this informative brochure is particularly timely. It starts with the Great Fire of London and traces the development and record of this service which now reaches into every city and hamlet; 64 historic conflagrations, whose property losses add up to $990,915,000, are listed for the last 120 years. Outlines are also given of the Home Office Organization, the Work of Underwriters Laboratories, and the Duties of Local Agent.

Crime and Courts

The Juvenile Court—A Community Concern.—By Benedict S. Alper. February, 1940, *issue of* Social Action, *published by the Council for Social Action of the Congregational and Christian Churches, 289 Fourth Ave., New York. 36 pp.* 15c.

What causes a child to become delinquent? And what is the function of juvenile courts in handling such boys and girls? These are some of the basic questions answered in this issue of *Social Action*, which points out what needs to be done in each community to improve the effectiveness of the juvenile courts, or to bring about the establishment of courts in localities where none now exist.

Insect Control

Mosquito Control, New York City, 1939.—*Departments of Sanitation and Health, New York City.* 1940. *iii* + 100 *pp.*

Strange as it may seem, approximately one-ninth of the total area of congested New York, or about 35,000 acres, consists of salt marshes—prolific breeding places for mosquitos. Needless to say, then, prevention and control measure must be extensive in this city. This report summarizes them for last year—elimination of breeding places, breeding inspection and larvicide spraying, results of light-trap operations—with an outline of planned and proposed work for 1940.

Milk as a Public Utility

Legal Possibilities and Limitations of Milk Distribution as a Public Utility.—By W. P. Mortenson, Associate Professor of Agricultural Economics, University of Wisconsin. In the Journal of Land and Public Utility Economics, Northwestern Univ., 337 E. Chicago Ave., Chicago, Ill.; two parts—pp. 437-447, *Nov.,* 1939, *issue, and pp.* 61-71, *Mar.,* 1940, *issue.*

There is a definite trend in the direction of making the processing and distribution of fluid milk a public utility. This article analyzes the legal precedence and future probability of a continuation of this trend in a review of United States Supreme Court decisions involving the regulation of fluid milk, and an outline of the history of regulation of the more typical public utilities. This is a portion of a large study being conducted as a station research project in the Department of Agricultural Economics, University of Wisconsin.

Library Book Selection

The Practice of Book Selection.—Edited by Louis R. Wilson. The University of Chicago Press, Chicago, Ill. 1940 *xii* + 368 *pp.* $2.50 *from* The American City.

"Wise and Witty" words by librarians, editors, publishers, teachers, on book selection for public libraries and schools—general theories, and standards for particular classes of books, as, for instance, books on self-therapy, children's books, technical and scientific literature, etc. The papers contained in the book are those that were presented before the Library Institute at the University of Chicago, July 31 to August 13, last year, and include also discussion of such aspects of the subject as community analysis and the practice of book selection, the organization of library process in book selection, the esthetic aspects of book production.

Government Letters

Writing Effective Government Letters.—By James F. Grady and Milton Hall. Employee Training Publications, Box 71, Washington, D. C. 1939. *xvi*+109 *pp.* $1.50.

Because the government agent rarely has personal contact with the citizen, letters become government's representative to its citizens. Seventy-five cents is the average cost of a letter sent from an office. These are two of the reasons for the importance of the subject of this book, which is of particular interest at a time when public relations and training programs are constantly assuming greater significance. In fresh, brisk, brief style, this small volume outlines the standards for good letters, and analyzes the practical means of attaining them, from the broad planning of the letter to the use of words and the least punctuation mark—in brief, how to say what you want, get the result that you want, and at the same time create good-will.

Mayors' Conference

City Problems of the West.—Edited by Paul V. Betters, Executive Director, The United States Conference of Mayors, 730 Jackson Pl., Washington, D. C. 1940. *iv* + 88 *pp.* $2.00.

"City Problems of the South," the proceedings of the Southern Regional Conference, was listed in the May issue of The American City. This book contains the proceedings of the Western Regional Conference of the United States Conference of Mayors, which was held at Portland, Ore., April 8-9, 1940. Housing, fire insurance, airports, unemployment, revenue problems and Federal taxation of municipal bonds are discussed from the point of view of the western city.

Traffic Library

Library Classification and Sample Bibliography of Traffic Engineering Materials.—By Leslie Williams, Research Assistant, Bureau for Street Traffic Research, Yale University, New Haven, Conn. 1940. *58 pp.* $1.00.

Because traffic engineering is still an emerging profession, the development of traffic engineering libraries is particularly important. At the same time, little has been done toward standardizing a system of classification for material for such a library. Contained in this publication are a Classification System, a Subject List, and a Topical Index to be used in setting up a library on traffic, with full instructions for installing the system. Also given is a sample bibliography of suggested minimum titles on traffic.

Handbill Distribution

Regulation of Handbill Distribution—Legal Problems Involved (Report No. 136).—American Municipal Association, 1313 E. 60th St., Chicago, Ill. 1940. *23 pp.* 50c.

Still confused—particularly since recent Supreme Court decisions relating to the subject—is the question of the regulation of the distribution of handbills, circulars, pamphlets and other printed material. Many city ordinances will have to be re-interpreted, amended or revised. General considerations which must be taken into account in this redrafting are the subject of this report, which defines the general powers and aims of such an ordinance and the extent to which it can and cannot regulate the distributor, and the place and method of distribution.

Officials

The Powers and Duties of Mayors in Wisconsin Cities, and The Powers and Duties of Presidents in Wisconsin Villages.—League of Wisconsin Municipalities, 30 E. Johnston St., Madison, Wis. 1940. *13 pp., 9 pp., respectively.*

These bulletins contain summary statements of the powers and duties of mayors and presidents of Wisconsin cities and villages, as provided by statute and as interpreted by the courts. They cover election, recall, removal and vacancy, restrictions on the mayor's activities, conflicting offices, his powers and duties, including his power to issue licenses and permits, to make appointments and remove and supervise officials. No evaluation has been made of the items listed.

Labor Relations

Second Annual Report of Newark Labor Relations Board—A Municipal Mediation and Conciliation Agency.—Newark Labor Relations Board, City Hall, Newark, N. J. 1940. *50 pp.*

A municipal labor-relations body is a new organization in the city government field. Not overlapping in function with the National Labor Relations Board, which administers the law, this agency is concerned with adjusting disputes between management and labor. Three such agencies exist in the country; besides that in Newark, there is one in Toledo, Ohio, and another in Sheboygan, Wis., although there are bodies with similar functions in other cities. This report summarizes the Newark board's activities in mediating in labor differences and supplementary activities in carrying on research, conducting councils and conferences; and points out progress made since the last report in increased number and percentages of disputes mediated in the area, and the earlier stages in their development at which disputes are reaching the Board. This report also contains excerpts from the First Annual Report, which describe the origin, aims, organization, and methods of functioning of the Board.

Other Reports Received

Bay City, Mich.—Annual Report, Planning and Zoning Commission, year ending May 1, 1940. 8 pp.

Chicago, Ill.—Report, 1939, Department of Law. 106 pp.

District of Columbia.—Motor Vehicle Safety Inspection — 1940 Inspection Manual. Dept. of Vehicles and Traffic. 78 pp.

East Cleveland, Ohio.—Annual Report, 1939. 4 pp.

Hays, Kans.—Annual Report, City Manager, 1939. 20 pp.

Holland, Mich. — Annual Report, Board of Public Works, 1939. 62 pp.

Hutchinson, Minn.—Annual Report, Light and Power Commission, year ending Mar. 31, 1940. 19 pp.

Kansas City, Kans.—Annual Report, Board of Public Utilities, 1939. 36 pp.

Lansing, Mich.—"More Power to Lansing." Board of Water and Electric Light Commissioners. 1940. 36 pp.

Manila, Commonwealth of the Philippines. —Souvenir Bulletin Published on the Occasion of the Official Opening of the Angat-Novaliches Water Supply System and the Metropolitan Water District Office Building. Dept. of Public Works and Communications. 1940. 39 pp.

Marquette, Mich.—Reports of the City, 1939. 91 pp.

Minneapolis, Minn.—Annual Report, Fire Department, 1939. 39 pp.

—Financial Statistics, 1940. Board of Estimate and Taxation. 48 pp.

New Haven, Conn.—"Better Roadsides." Conn. Forest and Park Association. 1940. 24 pp.

New York, N. Y.—"County Planning in Metropolitan Areas as Exemplified by Bergen County, N. J." Regional Plan Association, 400 Madison Ave. 1940. 12 pp.

Northern Hudson County, N. J.—Recognition Number and Industrial Guide. Chamber of Commerce of Northern Hudson County, 1940. 92 pp.

Salem, Mass.—Annual Report, Park Department, 1939. 40 pp.

Topeka, Kans.—Annual Report, 1939. 88 pp.

Washington, D. C.—"Standards in Police Training." Federal Bureau of Investigation, U. S. Dept. of Justice. 1939. 94 pp.

—Typical Electric Bills, issued for each state. Federal Power Commission.

West Milwaukee, Wis.—Financial Statement, Tax Data and Budget, 1939 and 1940. 19 pp.

Westmount, Quebec, Canada.—Annual Report, 1939. 70 pp.

Winnipeg, Canada.—Annual Report, Winnipeg Hydro-Electric System, 1939. 15 pp.

PATENT PENDING

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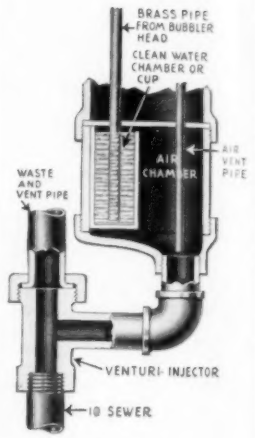

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Conventions - - When and Where

Meeting is annual convention unless otherwise designated

JUNE 10-12.—ROCHESTER, N. Y.
Conference of Mayors and Other Municipal Officials of the State of New York. Exec. Sec., William P. Capes, City Hall, Albany, N. Y.

JUNE 13-14.—MONTROSE, COLO.
Colorado Municipal League. Sec.-Treas., Don C. Sowers, Univ. of Colorado, Boulder, Colorado.

JUNE 17-19.—TWO HARBORS, MINN.
League of Minnesota Municipalities. (High School Bldg.) Exec. Sec., C. C. Ludwig, Univ. of Minnesota, Minneapolis, Minn.

JUNE 17-19.—DETROIT, MICH.
Municipal Finance Officers' Association of the United States and Canada. (Hotel Statler.) Exec. Dir., Carl H. Chatters, 1313 E. 60th St., Chicago, Ill.

JUNE 20-22.—SYRACUSE, N. Y.
New York State Sewage Works Association. (Hotel Syracuse.) Sec.-Treas., A. S. Bedell, State Dept. of Health, Albany, N. Y.

JUNE 24-27.—ST. JOSEPH, MICH.
Michigan Association of Chiefs of Police. (Hotel Whitcomb.) Address: Sec.-Treas., Oscar G. Olander, City Commissioner, E. Lansing, Michigan.

JUNE 24-26.—PASADENA, CALIF.
National Institute of Municipal Law Officers. Mid-year meeting. (Hotel Huntington.) Exec. Dir., John A. McIntire, 730 Jackson Place, N. W., Washington, D. C.

JUNE 24-26.—STATE COLLEGE, PA.
Pennsylvania State Association of Boroughs. (Nittany Lion Hotel.) Pres., Thomas F. Chrostwaite, Hanover, Pa.

JUNE 24-28.—STATE COLLEGE, PA.
Pennsylvania Water Works Operators' Association. Sec.-Treas., I. M. Glace, 22 S. 22d St., Harrisburg, Pa.

JUNE 25-27.—DIXVILLE NOTCH, N. H.
New England Association of Fire Chiefs. (Balsams Hotel.) Sec., John W. O'Hearn, Watertown, Mass.

JUNE 26-28.—STATE COLLEGE, PA.
Pennsylvania Sewage Works Association. (State College Campus and Nittany Lion Hotel.) Sec., L. D. Matter, Kirby Health Center, Wilkes-Barre, Pa.

JUNE 30-JULY 4.—MILWAUKEE, WIS.
National Education Association of the United States. Exec. Sec., Willard E. Givens, 1201 16th St., N. W., Washington, D. C.

JULY 8-11.—SAN FRANCISCO, CALIF.
National Conference on Planning. (Fairmont Hotel.) Joint annual conference of American Society of Planning Officials, American Institute of Planners, the American Planning and Civic Association, and the National Economic and Social Planning Association. Conference Dir., Walter H. Blucher, 1313 E. 60th St., Chicago, Ill.

*JULY 15-20.—AUSTIN, TEXAS.
Conference in Traffic Engineering. College of Engineering of the University of Texas. Address: John A. Focht, Professor of Highway Engineering, Univ. of Texas, Austin, Texas.

JULY 21-26.—STANFORD UNIVERSITY, CALIF.
Western Conference for Commercial and Trade Executives. (Lagunita Court.) Business Mgr., Leonard E. Read, 1151 South Broadway, Los Angeles, Calif.

JULY 23-25.—NEW YORK CITY.
New York State Association of Chiefs of Police. (Hotel Astor.) Sec.-Treas., R. W. Morris, P. O. Box 346, Geneva, N. Y.

JULY 23-25.—WILLIAMSPORT, PA.
Pennsylvania Chiefs of Police Association. (Lycoming Hotel.) Sec., F. B. Titus, Lansdowne, Pa.

AUGUST 5-8.—SPOKANE, WASH.
International Association of Fire Chiefs. (Davenport Hotel.) Sec., James J. Mulcahey, 16 Franklin Ave., Yonkers, N. Y.

AUGUST 18-24.—EVANSTON, ILL.
National Institute for Commercial and Trade Organization Executives. (Northwestern Univ.) Sec., C. R. Miles, 832 First Nat'l Bank Bldg., Chicago, Ill.

AUGUST 22-24.—LOGAN CITY, UTAH.
State Municipal League of Utah. (Eccles Hotel.) Sec., Tom McCoy, Public Safety Bldg., Salt Lake City, Utah.

AUGUST 27-30.—DETROIT, MICH.
National Shade Tree Conference. (Book-Cadillac Hotel.) Sec.-Treas., L. C. Chadwick, Ohio State Univ., Columbus, Ohio.

SEPTEMBER 5-6.—PIERRE, S. DAK.
League of South Dakota Municipalities. (St. Charles Hotel.) Sec., A. E. Mead, Univ. of South Dakota, Vermilion, S. Dak.

SEPTEMBER 9-12.—SPRING LAKE, N. J.
Illuminating Engineering Society. (Essex and Sussex Hotel.) Gen. Sec., A. D. Cameron, 51 Madison Ave., New York.

SEPTEMBER 9-12.—MILWAUKEE, WIS.
International Association of Chiefs of Police. (Hotel Schroeder.) Exec. Vice-Pres., William P. Rutledge, 1313 E. 60th St., Chicago, Ill.

SEPTEMBER 9-12.—BALTIMORE, MD.
National Association of Assessing Officers. (Lord Baltimore Hotel.) Exec. Dir., Albert W. Noonan, 1313 E. 60th St., Chicago, Ill.

SEPTEMBER 11-13.—ANN ARBOR, MICH.
American Water Works Association—Michigan Section. (Michigan Union.) Sec., M. N. Gerardy, Water Board Bldg., Detroit, Mich.

SEPTEMBER 16-17.—DENVER, COLO.
American Water Works Association—Rocky Mountain Section. (Cosmopolitan Hotel.) Sec., B. V. Howe, State Office Bldg., Denver.

SEPTEMBER 16-19.—SAN DIEGO, CALIF.
League of California Cities. Sec., Richard Graves, 2121 Allston Way, Berkeley, Calif.

SEPTEMBER 18-20.—NEW CASTLE, PA.
American Water Works Association—Western Pennsylvania Section. (Castleton Hotel.) Sec., E. P. Johnson, 418 Flannery Bldg., Pittsburgh, Pennsylvania.

SEPTEMBER 18-20.—ROCK ISLAND, ILL.
Illinois Municipal League. (Fort Armstrong Hotel.) Exec. Dir., A. D. McLarty, 500 E. Capitol Ave., Springfield, Ill.

SEPTEMBER 22, Week of.—WHITE SULPHUR SPRINGS, W. VA.
American Transit Association. (Greenbrier Hotel.) Gen. Sec., Guy C. Hecker, 292 Madison Ave., New York.

SEPTEMBER 22-24.—ROANOKE, VA.
League of Virginia Municipalities. (Hotel Roanoke.) Exec. Sec., Morton L. Wallerstein, 902 Travelers Bldg., Richmond, Va.

SEPTEMBER 23-26.—COLORADO SPRINGS, COLO.
International City Managers' Association. (Broadmoor Hotel.) Exec. Dir., Clarence E. Ridley, 1313 E. 60th St., Chicago, Ill.

SEPTEMBER 23, WEEK OF.—FRANKFORT, KY.
Kentucky Municipal League. (New Capital Hotel.) Exec. Sec., Carl B. Wachs, Univ. of Kentucky, Lexington, Ky.

SEPTEMBER 24-27.—CLEVELAND, OHIO.
American Institute of Park Executives and the American Park Society. (Hotel Statler.) Exec. Sec., Will O. Doolittle, Box 422, Tulsa, Oklahoma.

SEPTEMBER 24-27.—NEW YORK CITY.
New England Water Works Association. (Hotel Commodore.) Sec., Frank J. Gifford, 613 Statler Bldg., Boston, Mass.

SEPTEMBER 30-OCTOBER 2.—DETROIT, MICH.
American Public Works Association. (Hotel Book-Cadillac.) Exec. Dir., Frank W. Herring, 1313 E. 60th St., Chicago, Ill.

SEPTEMBER 30-OCTOBER 4.—CLEVELAND, OHIO.
National Recreation Association. (Hotel Statler.) Sec., Howard S. Braucher, 315 Fourth Ave., New York.

OCTOBER 1-2.—COLUMBUS, OHIO.
Ohio Conference on Sewage Treatment. (Neil House.) Sec., B. M. McDill, Dept. of Health, Columbus, Ohio.

*OCTOBER 3-5.—CHICAGO, ILL.
(Hotel Sherman.) First annual convention of the *Federation of Sewage Works Association,* Sec.-Treas., H. E. Moses, 1522 N. Second St., Harrisburg, Pa., meeting in conjunction with the annual meeting of the *Central States Sewage Works Association,* Sec., W. H. Wisely, State Dept. of Public Health, Springfield, Ill.

*OCTOBER 5-8.—CHICAGO, ILL.
Institute of Traffic Engineers. (Sherman Hotel.) Sec.-Treas., Harold F. Hammond, 60 John St., New York.

OCTOBER 7-11.—CHICAGO, ILL.
National Safety Council. (Stevens Hotel.) Mng Dir., W. H. Cameron, 20 N. Wacker Drive, Chicago, Ill.

OCTOBER 8-11.—DETROIT, MICH.
American Public Health Association. (Book-Cadillac Hotel.) Exec. Sec., Dr. Reginald M. Atwater, 50 W. 50th St., New York.

OCTOBER 8-10.—SCOTTSBLUFF, NEBR. (Tentative)
League of Nebraska Municipalities. (Hotel Lincoln.) Sec.-Treas., C. E. Beals, 204 Brownell Bldg., Lincoln, Nebr.

*OCTOBER 8-9—MADISON, WIS.
Wisconsin Chiefs of Police Association. (Hotel Loraine.) Sec., E. K. McCarty, Kaukauna, Wis.

OCTOBER 14-17.—TULSA, OKLA.
American Water Works Association—Southwest Section. (Mayo Hotel.) Sec., Lewis A. Quigley, 3320 W. Berry St., Fort Worth, Texas.

*OCTOBER 14-16.—MANITOWOC, WIS.
American Water Works Association—Wisconsin Section. (Hotel Manitowoc.) Sec., L. A. Smith, City Hall, Madison, Wis.

OCTOBER 14-17.—JACKSONVILLE, FLA.
International Municipal Signal Association, Inc. (George Washington Hotel.) Sec., Irvin Shulsinger, 8 E. 41st St., New York.

OCTOBER 14-18.—DETROIT, MICH.
National Association of Public School Business Officials. (Book-Cadillac Hotel.) Sec., H. W. Cramblet, Board of Education, Pittsburgh, Pa.

OCTOBER 18-19.—ATLANTIC CITY, N. J.
American Water Works Association—New Jersey Section. (Madison Hotel.) Sec.-Treas., C. B. Tygert, Box 178, Newark, N. J.

OCTOBER 21-23.—LEXINGTON, KY.
American Water Works Association—Kentucky-Tennessee Section. (Lafayette Hotel.) Sec.-Treas., Howard D. Schmidt, 420 6th Ave., N., Nashville, Tenn.

OCTOBER 21.—BLUEFIELD, W. VA.
League of West Virginia Municipalities. Exec. Sec., Hume K. Nowlan, Hinton, W. Va.

OCTOBER 23-26.—LOS ANGELES, CALIF.
American Water Works Association—California Section. (Biltmore Hotel.) Sec., Burton S. Grant, Box 240, Arcade Annex, Los Angeles, Calif.

*OCTOBER 28-30.—RALEIGH, N. C.
Joint meeting. American Water Works Association—North Carolina Section. Sec., R. S. Phillips, 206 Dacian Ave., Durham, N. C. *North Carolina Sewage Works Association.* Acting Sec., A. R. Hollette, Chapel Hill, N. C.

*NOVEMBER 7-8.—WILMINGTON, DEL.
American Water Works Association—Four States Section. (Hotel Du Pont.) Sec.-Treas., Carl A. Hechmer, Washington Suburban Sanitary District, Hyattsville, Md.

NOVEMBER 7-8.—ST. PAUL, MINN.
American Water Works Association—Minnesota Section. (St. Paul Hotel.) Sec.-Treas., Ronald M. Finch, Wallace & Tiernan Co., Inc., 414 Flour Exchange, Minneapolis, Minn.

*NOVEMBER 7-8.—FORT WORTH, TEXAS.
League of Texas Municipalities. (Texas Hotel.) Exec. Sec., E. E. McAdams, 2223 Guadalupe St., Austin, Texas.

*DECEMBER 2-5.—NEW YORK CITY.
American Society of Mechanical Engineers. (Hotel Astor.) Nat'l Sec., C. E. Davies, 29 W. 39th St., New York.

*First appearance of notice on this page.

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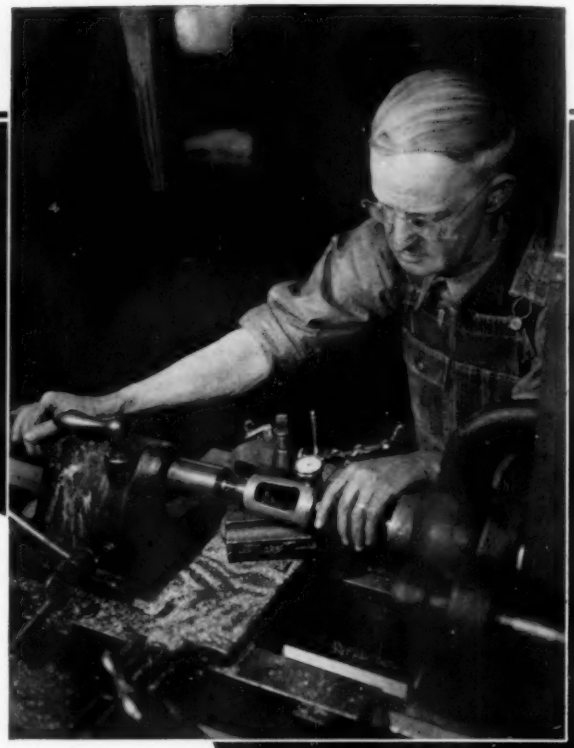

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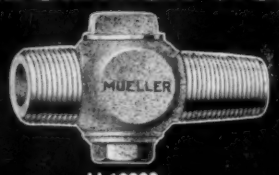

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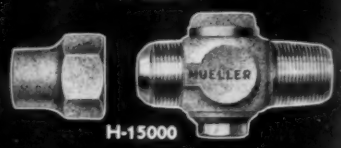

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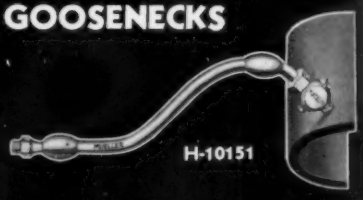

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News and Illustrations

Items of Interest to City, Town and County Officials, and Others Concerned with the Economical Construction and Efficient Operation of Public Improvement Undertakings

William J. Orchard, Center, with C. F. Wallace, Vice-President, left, and M. J. Tiernan, President, Wallace & Tiernan, Inc., at the 25-Year Banquet Given for Mr. Orchard

Bill Orchard Honored for 25 Years' Service

A group of associates of William J. Orchard, General Manager of Wallace & Tiernan Co., Inc., Newark, N. J., tendered him a banquet recently at the Waldorf-Astoria Hotel, New York, in recognition of his 25 years' service with Wallace and Tiernan. Gifts of souvenir photographs and signatures of all the more than 1,000 employees of Wallace & Tiernan, and a diamond-studded 25-year service pin, all of which will be treasured by Mr. Orchard, were among the highlights of the banquet.

Bill Orchard was formerly associated with the New Jersey State Board of Health and joined the staff of Wallace & Tiernan on April 15, 1915. He is an honorary member of the American Water Works Association, Fellow of the American Public Health Association, member of the Board of Control of the Federation of Sewage Works Association, past President of the Water Works Manufacturers Association, and for several years has been Chairman of the Convention Management Committee of the latter organization. He is active in civic affairs in his home community of Maplewood, N. J.

Hydraulic Tower Lift and Dump Body Hoists

A light-weight tower lift equipment for all overhead work such as the maintenance of street lights is being manufactured by the Bird-White Corporation, 624 South Michigan Avenue, Chicago, Ill. This equipment can be adapted to any truck from 1 ton capacity up. It is made to meet all special requirements for height, weight, platform extensions, etc., and the manufacturer offers a body design consisting of a paneled back, streamlined so as to hide the lowered lift platform.

Bird-White is also offering a hydraulic dump hoist for installation on ½-, ¾-, and 1-ton truck chassis. The compactness of the hydraulic mechanism is due to high pressure in the system. The compactness of the mechanism makes possible low mounting, low loading height, and light weight. The loading height is under 48 inches, making it particularly adaptable for hand loading

Complete information regarding either the hydraulic dump hoist or the light-weight tower lift equipment may be secured direct from the manufacturer by mentioning this item.

The New Bird-White Hydraulic Tower Lift Unit

Reflector Buttons for Highway Signs

A Signal Service Reflector Button

The lens-type reflector units made by Signal Service Corporation, Elizabeth, N. J., consist of an optical glass lens and reflector cup contained in a drawn metal housing which is provided with a mounting flange in front and on the rear, with projecting lugs to which a variety of holding fittings, for different mountings, may be attached. The assembly is hermetically sealed. The manufacturer states that these reflector units return a reflected indication when approached by an automobile at night from any angle out to 30 degrees from head on or within a cone the total angle of which is 60 degrees. The optical lens of Signal Service Reflector buttons is of optical glass. In the molding process, slumpage, from cooling, is taken up in the sides of the lens and compensated for. This avoids surface irregularities which would result in loss of light by dispersion. It also insures accurate focus between the lens and reflector cup.

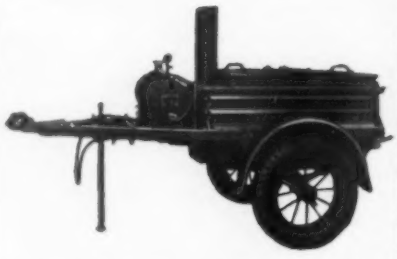
These units are made in two grades of identical manufacture but of different grades of materials. Complete information regarding the mounting attachments and dimensions of the five sizes of Signal Service Reflector units will be be found in Bulletin AL53, which will be sent promptly to readers mentioning this item.

A Good Combination—A Littleford Pressure Distributor Towing a Littleford Tank Car Heater Away from the Cincinnati Factory of the Manufacturer, Littleford Bros.

RUBBISH BASKET

Made of expanded metal, the "Samson" Rubbish Basket is well equipped to give long, economical service in your city streets, parks, zoos and in other places where waste containers are needed. Specifications and prices upon request. *"It's Wheeling Steel"*

THE CONSOLIDATED EXPANDED METAL COMPANIES
WHEELING, WEST VIRGINIA
Branch Offices and Warehouses: New York • Chicago • Cleveland • Pittsburgh
Philadelphia • Detroit • Boston • Buffalo • Houston • Atlanta
Export Office: 330 West 42nd St., New York, N. Y.



CONNERY'S

Style "S" 4 Pass Oil-Burning Tar & Asphalt Heating Kettle is the ideal heater for highway maintenance. Fuel costs reduced 50% and hot material furnished twice as fast. Equipped with 6.00 x 20—6-ply, pneumatic - tired wheels with Timken bearings, truck springs and patented hitch for fast and safe towing.

Send today for our complete catalog showing our full line of Tar and Asphalt Heating Kettles, Spraying Attachments, Pouring Pots, etc.

CONNERY CONSTRUCTION COMPANY
4000 North Second St. Philadelphia, Pa.

10 WAYS to Get more work out of your MOTOR TRUCKS
Here's a Stop of 2 Hours
POINTS OUT ALL DELAYS
How? Equip them with the Servis Recorder. It points out all delays. It records idle time, busy time, day and night and overtime, too—all on a waxed chart (see at left). Write for booklet: "Ten Ways of Getting More Work Out of Motor Trucks."
This 16-Page Booklet FREE!
—invaluable to fleet operators
The SERVICE RECORDER Co., 1422 Euclid Ave., Cleveland, O.
The Servis Recorder
Tells Every Move Your Truck Makes

STONEHOUSE
Accident Prevention *Steel* SIGNS

Stonehouse signs are important to any well-rounded safety program. They have many uses in municipalities other than for street and highway purposes. The hazards encountered in municipal light, gas, water, sewer and other city shops can be effectively guarded with proper signs.

For 30 years we have specialized in the manufacture of Accident Prevention Signs of all types. Write for complete catalog material covering the thousands of stock signs that will help you in your safety work.

Stonehouse SIGNS, INC.
1258 Ninth Street
DENVER, COLORADO
"The Accident-Prevention Sign Specialists"

STEWART FENCES
for all Public Property

• City officials throughout the country are selecting Stewart Iron and Wire Fences to beautify and protect parks, playgrounds, buildings, institutions and other public property. They know Stewart Fences provide lifetime protection at the lowest per year cost.

Other Stewart Products for public property uses comprise: Settees, steel folding chairs, wire mesh partitions, trash receptacles, flag poles, bronze plaques, and many others.

When writing for information, please mention products in which you are interested. Sales and erection offices in principal cities.

The Stewart Iron Works Co., Inc.
721 Stewart Block, Cincinnati, Ohio

Stewart IRON and WIRE FENCES

During June we hope you will remember to mention THE AMERICAN CITY.

Charlie Spears Joins LaPlant-Choate Co.

Charles A. Spears, New Director of Sales Development, La-Plant-Choate Mfg. Co.

Charles A. Spears, widely known to construction men and road builders, has resigned his position in the Caterpillar Tractor Co. sales department to become director of sales development for one of that company's allied manufacturers, the La-Plant - Choate Mfg. Co., Inc., Cedar Rapids, Iowa. Mr. Spears has been identified with construction progress since modern earth-moving methods had their beginning.

After graduating from the University of Southern California, Mr. Spears founded the Spears-Wells Machinery Co., of Stockton, Calif., in 1912, and became Vice-President and General Manager for this manufacturer of graders and oiling machinery. He left the firm in 1929 to become district representative of Caterpillar Tractor Co. in the California area, later serving as supervisor of government and construction sales. Of late he has been connected with the sales development division at Caterpillar.

LaPlant-Choate Co. acquires Mr. Spears' services just as it completes a new 700 x 100-foot factory addition, and has obtained additional plant site suitable for further expansion adjoining the present property. LaPlant-Choate now builds a complete line of hydraulic and cable-controlled carrying scrapers ranging from 2- to 35-yard capacity, as well as its line of trailbuilders, bulldozers and sheepsfoot tampers. While Mr. Spears will make his headquarters at Cedar Rapids, he will spend considerable time in the field in cooperation with his company's district representatives.

Personnel Change at Caterpillar

Howard R. Murphy has been appointed Sales Manager of the Central Division for Caterpillar Tractor Co., Peoria, Ill. He comes to Caterpillar from Sears, Roebuck & Co., where he managed the tractor business for that concern. Mr. Murphy originally joined the Caterpillar organization thirteen years ago and was employed in various sales capacities, finally becoming Manager of the company's Sales Development Division. In 1938, he left Caterpillar to take the post with Sears, Roebuck.

The Central Sales Division comprises a large area in the Middle West extending north and south of the Great Lakes to the Gulf of Mexico. As Sales Manager, Mr. Murphy succeeds C. M. Burdette, who has resigned to take a brief rest and later to become associated in another business.

Four-Wheel Scrapers for Dirt Moving

A new line of four-wheel scrapers for use with International TracTracTors has recently been announced by Bucyrus-Erie Co., South Milwaukee, Wis. To keep maintenance costs at a minimum, the design has been simplified so that the scrapers consist of only five main parts: (1) frame with side plates; (2) tilting bowl; (3) apron; (4) tongue assembly; and (5) rear axle assembly.

Using a two-line cable control, one cable for controlling the height of the digging edge and the other to control the opening of the apron and tilting of the bowl, these scrapers give accurate depth of both digging and spread. In dumping, the bowl is tilted up through an arc between the side plates of the frame to an almost vertical position giving controlled rolling ejection. The tilting bowl consists of a simple reinforced double-bottom plate curved below and behind the dirt, and rotating between the fixed side plates of the frame. The front edge of the tilting bowl is hinged to the frame just behind the digging blade by means of a

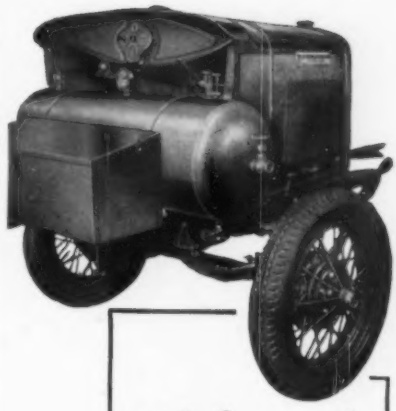
The New Bucyrus-Erie 4-Wheel Scraper

full-length solid bar. As it rotates about this hinge in dumping, the bottom of the bowl lifts, thus ejecting the dirt with a rolling motion. Since this ejection has the aid of gravity, minimum power is required to accomplish clean, positive dumping. Adhesion of material is virtually eliminated by the sharp angle to which the bottom of the bowl is lifted, and by its scraping action against the side plates of the frame. These fixed side plates close the gap at the sides between the bowl and the apron at all times, thus preventing any side spilling of dirt during loading or dumping.

A complete description of all the advantages offered in this new line of scrapers may be secured through THE AMERICAN CITY or from your nearest International TracTracTor dealer who is the exclusive distributor for Bucyrus-Erie tractor equipment.

New Vice-Presidents for Mathieson Alkali

Two promotions in the executive staff of the Mathieson Alkali Works, 60 East 42nd Street, New York, have recently been announced. George W. Dolan, formerly assistant to E. M. Allen, President, has been elected Vice-President, as has C. S. Glenn, who will also retain his former title of Director of Operations.



Check Up

on price, operating economy and performance and

You'll use

SMITH AIR COMPRESSORS

Sizes: 60 cu. ft. and 120 cu. ft. a minute capacity.

Models: With new or completely reconditioned Ford Motors and the patented Smith Compressor Head.

Here's why you'll always be glad you bought a "Smith"

1. Low initial cost, operating cost and maintenance. (Uses only one gallon of gasoline an hour with 60 cu. ft. capacity.)
2. All parts are standard. (Repair parts are available at Ford garages everywhere.)
3. Lightweight, easy-to-handle.
4. Capacity easily varied for different jobs.
5. The ruggedness and efficiency of these famous compressors are sources of constant satisfaction to users.
6. No couplings, belt, clutch or gears to give trouble.
7. Guaranteed against defects in materials and workmanship for one year.

Write Today!

GORDON SMITH & CO.

425 College St., Bowling Green, Ky.

In six years, each lane of Chicago's Outer Drive between Montrose and Foster Avenues has carried a volume of traffic equivalent to approximately 40 years of traffic on an average rural highway. The concrete today is in excellent condition and has required *practically no maintenance.*

Chicago adds 7,300,000 sq. yards of CONCRETE streets since 1930

Steadily, Chicago's street improvement program goes on. Last year, another 775,000 sq. yds. of safe, economical concrete was put down, replacing worn, rough pavements. With State, County and City cooperating, concrete is being used for *every type* of street—industrial and residential as well as the finest boulevards.

The savings to taxpayers are piling up, and will continue to grow. For concrete costs only a fraction as much for surface maintenance as other types of pavement—*usually only one-half to one-seventh as much!* Concrete *stays built* for long periods without costly resurfacing and rebuilding. *Annual* cost is a minimum.

Safety goes up too. Concrete plus modern roadway design has definitely decreased accidents: witness the remarkable safety record on Chicago's great Outer Drive between Montrose and Foster Avenues—only one fatal accident per 60,000,000 vehicle miles.

Your community also can profit from the use of concrete.

PORTLAND CEMENT ASSOCIATION
Dept. 6-4, 33 W. Grand Ave., Chicago, Ill.
A national organization to improve and extend the uses of concrete . . . through scientific research and engineering field work

THE MORE CONCRETE THE LESS SURFACE MAINTENANCE EXPENSE

Sub-Surface Filtration Increases Useful Area

One of the New Graver Sub-Surface Strainers for Rapid Sand Filters

Sub-surface filtration as developed by Graver Tank & Mfg. Co., Inc., East Chicago, Ind., provides a means of obtaining a greater area of filtering surface by the submersion of a series of conical-shaped strainers below the surface of the sand, so that the water so be filtered can be divided into two separate streams. This allows part of the water to percolate downward through the surface of the sand as in ordinary rapid sand filters, and the remainder flows into the sand through the strainers below the surface.

The area of the strainers placed below the sand surface is equivalent to approximately 50 per cent of the surface area; therefore, for a filter having a surface area of 100 square feet, the installation of a Graver sub-surface filtration system would increase the effective filtering area to 150 square feet.

In addition to increasing the capacity of the plant, this system also acts as a sub-surface and surface washer. With the Graver system a portion or all of the wash water can be pumped through the sub-surface strainers and also be balanced through the underdrain system. The water which enters the bed through the sub-surface strainers breaks up the mat formation so that the water from the underdrain system can float it off into the wash trough.

The W&T Pipe Anticipator Installed on a Crane

Hidden Pipes Located for Trench Excavators

A new automatic signal device, which warns an excavator operator by audible signal when his bucket approaches hidden underground metallic service pipes or cables, has been announced by Wallace & Tiernan Products, Inc., Belleville, N. J. This WTP Automatic Pipe Anticipator is recommended for use in street excavation for installing pipe or cable lines, for electric power, communication, traffic signal, fire alarm, water, gas or sewer; for subway, highway or street construction, at power plant and industrial yards requiring any kind of excavation; and for dredging where pipes and cables may exist.

This simple unit may be attached to any type of excavating machine, and produces a continuous sound which the operator hears either through a loudspeaker or ear phones. As the bucket of the excavator approaches a pipe or cable obstruction, the sound volume increases and announces the nearness of the hidden service line.

It is said that an operator requires very little experience to dig within a few inches of hidden pipes or cables with assurance, using a machine equipped with one of these units. Thus, it reduces the amount of hand excavation which must be done to protect underground structures. (See cut, end of first column.)

Here's Something

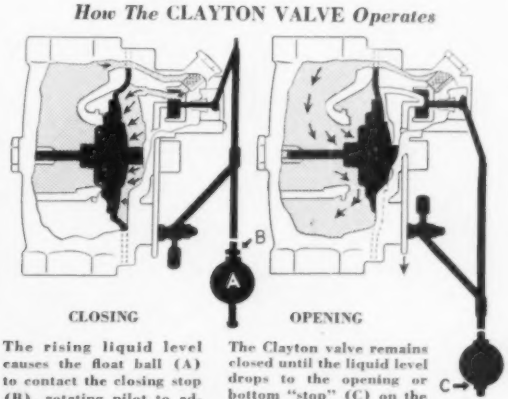
New **...in smooth, quiet and trouble-free FLOW AND LEVEL CONTROL**

A 5-inch FLOAT BALL operates this 12-inch CLAYTON VALVE, without water hammer, vibration or line shock.

The Clayton *Feather-Touch* Control Float Valve is hydraulically operated, closing and opening only as the line pressure is applied or relieved in the hydraulic chamber by means of a float operated pilot valve. A two-ounce "touch" on the pilot arm will operate the Clayton Valve, regardless of capacity or pressure of the flow being controlled. The valve is always wide open or drip-tight shut. No lingering in a partially open or closed position to cause vibration, water hammer and line shock. The revolutionary operating principle of the Clayton *Feather-Touch* Control Float Valve makes it adaptable to many uses never before practical with float valves of conventional design. Mail coupon or write for Bulletin AC-6, showing various installations.

Sold By CRANE CO.

How The* CLAYTON VALVE *Operates



CLOSING

The rising liquid level causes the float ball (A) to contact the closing stop (B), rotating pilot to admit full line pressure to hydraulic chamber. The line pressure thus exerted against the full area of the diaphragm and disc assembly in the hydraulic chamber overcomes the pressure at the smaller area of the valve seat, causing a positive seating and a drip-tight closed valve.

OPENING

The Clayton valve remains closed until the liquid level drops to the opening or bottom "stop" (C) on the guide rod. As the float ball contacts this stop, the pilot valve disc is rotated to seal off the line pressure entering the hydraulic chamber and open a free passage from the hydraulic chamber to atmosphere. Thus the line pressure forces the diaphragm and disc assembly off the seat to a wide-open position.

CLAYTON MFG. CO., Alhambra, Calif.
Mail.....copies of catalog bulletin on Clayton *Feather-Touch* control float valves to: AC-6

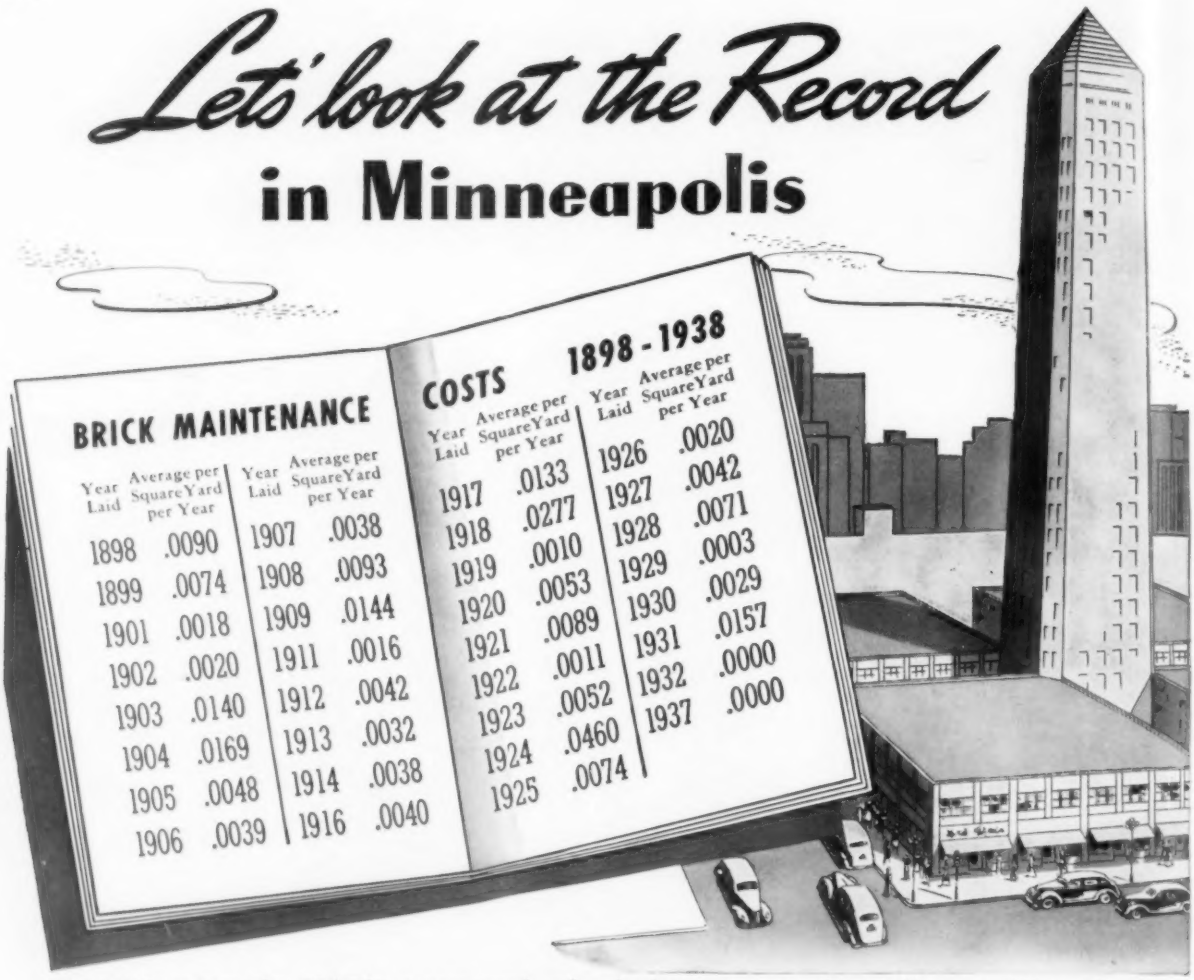
Name.....

Firm.....

Address.....

City.....

Let's look at the Record in Minneapolis



YOU'D expect the 784,761 square yards of brick to have a lower maintenance cost than any other type of pavement in Minneapolis. And it has—see official figures for the past 40 years.

And the Minneapolis weather is a pavement-killer! Temperatures from 100° above to plenty of—20°—30°. Months of chain traffic in ice-rutted streets... Over 40" of snow to be removed each winter—quantities of salt and cinders are used.

Yet under these severe service conditions the brick on its busiest streets are in excellent condition after 40 years of hard service.

A brick surface has greater immunity to weather damage than any other commonly used paving material. It is denser – less absorbent. Freeze and thaw affect it less. And as for traffic wear, nothing on wheels can damage it.

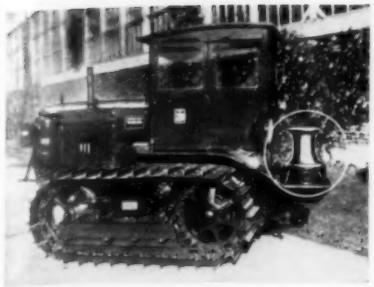
South Nicollet Street, laid in 1898. In excellent condition after 42 years' continuous service.

◂▸

For further information write National Paving Brick Association, National Press Building, Washington, D. C.

BRICK

FOR NEW CONSTRUCTION OR RESURFACE WORK



A T-20 TracTracTractor with Gar Wood Capstan Hoist Used to Unload Stores in Admiral Byrd's Latest Antarctic Expedition

Equipment Used by Antarctic Expedition

Among the equipment used by the United States Antarctic Expedition, headed by Admiral Richard E. Byrd, was an International track-type tractor equipped with a Gar Wood capstan winch. The tractor and winch eased the work of the men in unloading the USS North Star, the first expedition boat to arrive at the Antarctic. The power-driven winch, a product of Gar Wood Industries, Inc., Detroit, Mich., shown mounted on the rear of the tractor, takes care of many jobs where rope is used in handling, hauling or hoisting loads.

New Line of Bus Stop Signs and Standards

The Union Metal Mfg. Co., Canton, Ohio, has added a new line of bus stop signs and standards. The signs, available in three designs, are made of high-grade cast iron and are mounted on standards made of seamless structural steel tubing. These standards are easy to erect and maintain, and give a substantial, rigid support.

The backgrounds of the signs are painted yellow, and the raised letters and edges forming the border are painted black. This color combination possesses a high visibility and an attractive appearance.

Typical Union Metal Stop Sign

Submerged Combustion for Recarbonation

A new compact method of burning gas with the proper mixture of air to secure carbon dioxide for the recarbonation of water after lime softening has been developed by the Ozark Chemical Co., Tulsa, Okla. The feature of this method is known as "submerged combustion," in which the gas is burned under water, thus assuring thorough absorption of the carbon dioxide by the flowing water.

City gas at standard gas pressure and air at atmospheric pressure are properly proportioned automatically for the correct ratio for maximum CO_2 production. The mixture flows to a control valve by means of which the volume of fuel reaching the burner is controlled, and then to a motor-driven compressor which, with the flow-control valve, determines the pressure at which the fuel is discharged to the submerged burner.

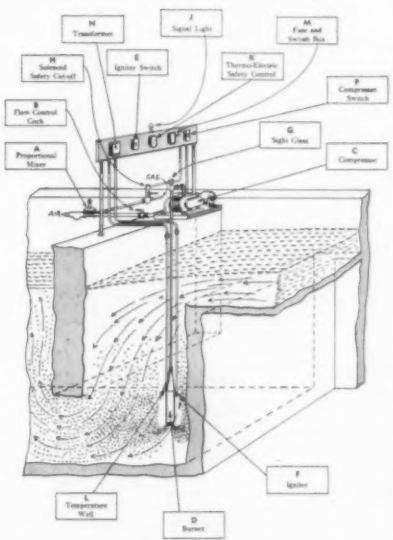


Diagram Showing the Operation of a Submerged Unit for Recarbonation of Lime-Softened Water

The burner is a cylindrical unit with an expansion chamber at the upper end which screws into the fuel line. The products of combustion, finely divided, are distributed through the flowing water and are quickly absorbed. A 3-inch burner is sufficiently large to furnish the proper amount of carbon dioxide for 16 mgd for normal recarbonation. The ignition of the fuel is by a special electric unit, which is turned on after the air has been pumped through the system to clear the space of water. When fuel is cut off for any reason, an alarm rings, notifying the operator that the flame has failed. To determine the accuracy of the proportioning, a special connection or sampling cock is provided through which the gas may be drawn and sampled either continuously or intermittently. Complete information on the low installation cost and high chemical efficiency of this method of recarbonation may be secured direct from Ozark Chemical Co.

STREET NAME SIGNS

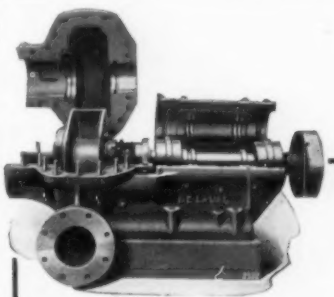
Cataphote presents the last word in appearance, legibility and permanence in street name signs.

IN NEEDED TYPES

Deep embossing, rust-proof ornamental brackets; adjustable; rust-proof bolts and nuts; varying size reflectors for your needs. Consult Cataphote on YOUR problem.

WESTERN CATAPHOTE

958 Wall St. Toledo, Ohio



DE LAVAL

CLOGLESS PUMPS

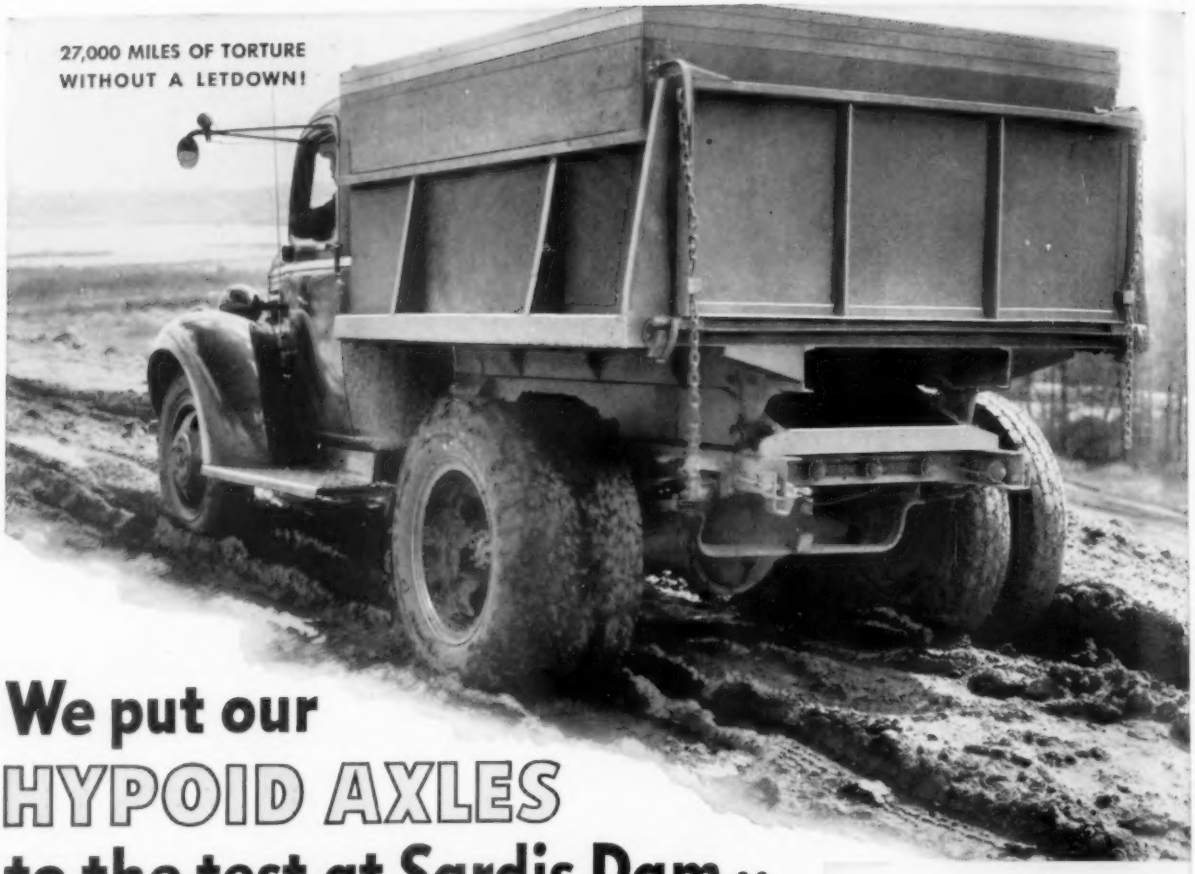
for liquids carrying solids

IMPELLER:	Enclosed; single suction; wide passages; extra long hub protected by renewable bronze sleeve.
WEARING RINGS:	Bronze; arranged for clear water sealing.
STUFFING BOX:	Located over impeller hub, clear water sealed; gland horizontally split.
BEARINGS:	Spaced well apart; accessible upon lifting bearing cap; large duplex ball thrust bearing; grease lubricated.
CASING:	Split horizontally; cover removable without disconnecting piping; handhole cover for quick inspection.

● Ask for Catalog B-1—3304

DE LAVAL STEAM TURBINE CO.

TRENTON, N. J.



We put our HYPOID AXLES to the test at Sardis Dam ·· *and look what happened!*

Down in Mississippi, at the Sardis Dam, Chevrolet found a truck proving ground that was death on rear axles. Millions of yards of gravel had to be moved, and moved fast. Trucks were carrying six-ton loads over a rutted road, up a quarter-mile 24 per cent grade.

No truck can take that kind of punishment indefinitely—and rear axles suffered a high mortality.

Chevrolet engineers eagerly accepted the challenge. They yanked the bevel gear axles out of two 1939 Heavy Duty trucks, and installed Chevrolet's new 1940 hypoid-gear rear axles.

What happened? Conventional axles were having trouble on an average of every 7,725 miles—but these 1940 hypoids did 27,000 miles without a failure. That was proof enough for our engineers. They brought those axles to Detroit, and found them still good for more thousands of miles.

Few trucks have to take such a beating as these two Chevrolet trucks took. But Chevrolet engineering demands that its trucks shall have extraordinary reserve strength. So—today—all new 1940 Chevrolet trucks have this vastly stronger, more efficient, and longer-lived rear axle. Hypoid means low costs.

From the gravel pit to Sardis Dam are ten miles of rough going and steep grades. Here Chevrolet's 1940 hypoid-gear rear axles proved their superiority over spiral-bevel-geared axles.

LEFT—NEW HYPOID PINION

RIGHT—CONVENTIONAL SPIRAL BEVEL PINION

These two drive pinions fit the same size ring gear—yet the hypoid pinion is 53.6% heavier, and has 37% greater tooth contact and 20% lower tooth pressure.

CHEVROLET MOTOR DIVISION, *General Motors Sales Corporation*, DETROIT, MICH.

CHEVROLET TRUCKS

During June we hope you will remember to mention THE AMERICAN CITY.

Making an 8-inch tap in a 10-inch main in North Kansas City, Mo., using a Smith tapping machine driven by a Bardwell wrench powered by a Skilsaw ¾-inch drill. Electric power was furnished by a 1,250-watt Homelite portable generator

Handy Power Wrench for Water-Works Use

A convenient power wrench which may be used to open and close large valves and to operate tapping machines, thus saving both labor and time, and in the case of excavation for taps greatly reducing the volume and area of excavation, is being sold by Homelite Corporation, 71 Riverdale Avenue, Port Chester, N. Y. This Bardwell power wrench is a simple, adjustable unit driven by any ¾-inch slow-speed electric drill such as the Skilsaw, Black & Decker and Mall drills, with a single speed reduction through a 20 to 1 or 30 to 1 reduction gear. Power for the unit is furnished by a portable 1,250-watt Homelite generator.

To place the electric drill power unit into the wrench, the pipe handle of the drill is first removed. An adjustable saddle clamp attached to the long arm of the wrench holds the drill in alignment. Then a block and set screw on the side away from the long arm holds the drill in position from that side. The drill may be easily removed in 10 minutes from the wrench for use on any other kind of work.

A demonstration of one of the Bardwell power wrenches with ¾-inch Skilsaw driven by a 1,250-watt Homelite generator for power was made in North Kansas City, Mo., during the American Water Works Association Convention on April 23, when an 8-inch tap was made in a 10-inch main with an A. P. Smith tapping machine to supply a new building of Canada Dry Ginger Ale, Inc. The cut was made in extra-heavy pipe in 55 minutes, saving more than half the time that would have been required had the work been done by hand with a ratchet wrench, as is customary.

Recently a 12-inch cut was made by the Schenectady, N. Y., Water Department in a 24-inch Class C cast iron main, using a 12-inch A. P. Smith cutter, with a Bardwell wrench and a 1,250-watt Homelite generator. The wrench was handled by one man, and the cut was made in 2 hours and 45 minutes. No other cuts of this size in similar mains have been made, but it is estimated that it would have taken 12 to 16 hours with 8 men working in turns to operate the hand ratchet wrench. About 8 feet of excavation was saved because not so much elbow room was required for the operation of the power wrench as would have been needed for the hand ratchet wrench.

These wrenches have been used to operate hand hoists and winches, and also to operate the winches on sewer-cleaning equipment, and in the South they have been used for running the winches for raising hand-cranked bridge spans.

New General Manager of Indian Motocycle Appointed

Dwight L. Moody, who has been with the Indian Motocycle Co., Springfield, Mass., for 23 years, and as Purchasing Agent since 1917, and who is one of the keenest motorcycle enthusiasts in the executive ranks of the company, has been appointed Vice-President and General Manager to succeed "Joe" Hosley.

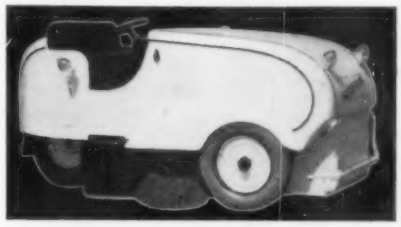
OSGOOD

POWER SHOVELS
DRAGLINES
CRANES
TRUCK SHOVELS, Etc.
⅜ to 2½ Cu. Yds.
HERCULES ROAD ROLLERS

Write for New Catalogs

THE OSGOOD CO.
MARION OHIO

South Bend
GUTTER-SNIPE
PICKUP STREET SWEEPERS



SWEEPS 5′ 6″ WIDE
FULL HYDRAULIC CONTROLS
REAR WHEEL STEER

South Bend
STREET FLUSHERS

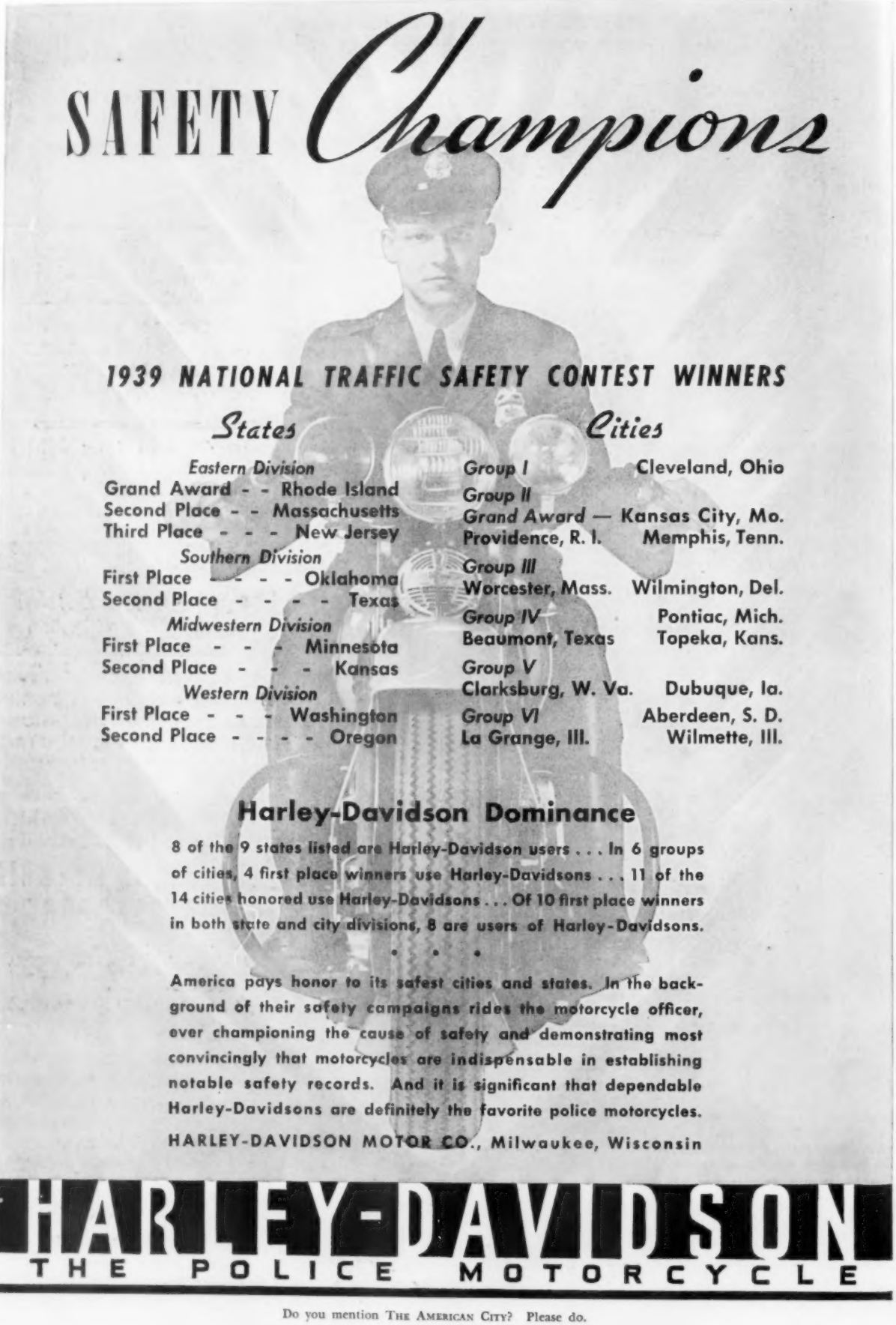
SIZES 600 TO 3000 GALLONS CAPACITY
FOR TRUCK OR TRAILER MOUNTING
STREAMLINE AND CONVENTIONAL
CLEANS FULL WIDTH STREET.

South Bend
BITUMINOUS MATERIAL
DISTRIBUTORS

SIZES 500 TO 2100 GALLONS CAPACITY
FOR TRUCK OR TRAILER MOUNTING
DISTRIBUTES ANY MATERIAL AT ANY
TEMPERATURE, IN ANY QUANTITY
NO-DRIP OR CIRCULATING SPRAY BARS.

Write for Catalogs
MUNICIPAL SUPPLY COMPANY
SOUTH BEND, INDIANA
Manufacturers of
Street Cleaning and Road Building Equipment

SAFETY *Champions*



1939 NATIONAL TRAFFIC SAFETY CONTEST WINNERS

States

Eastern Division
Grand Award - - Rhode Island
Second Place - - Massachusetts
Third Place - - - New Jersey

Southern Division
First Place - - - - Oklahoma
Second Place - - - - - Texas

Midwestern Division
First Place - - - Minnesota
Second Place - - - Kansas

Western Division
First Place - - - Washington
Second Place - - - - Oregon

Cities

Group I — Cleveland, Ohio

Group II
Grand Award — Kansas City, Mo.
Providence, R. I. — Memphis, Tenn.

Group III
Worcester, Mass. — Wilmington, Del.

Group IV
Beaumont, Texas — Pontiac, Mich.
Topeka, Kans.

Group V
Clarksburg, W. Va. — Dubuque, Ia.

Group VI
La Grange, Ill. — Aberdeen, S. D.
Wilmette, Ill.

Harley-Davidson Dominance

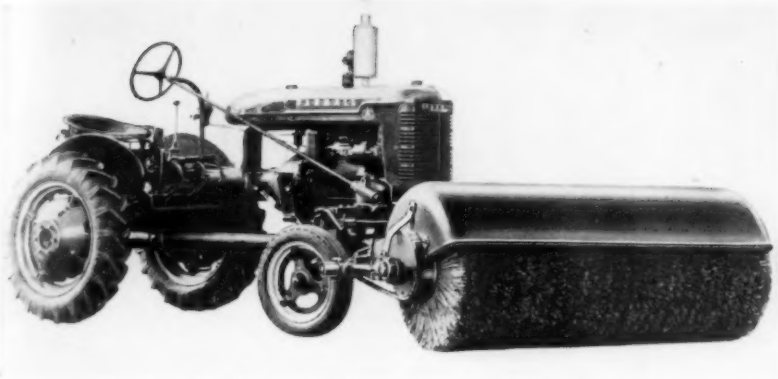
8 of the 9 states listed are Harley-Davidson users . . . In 6 groups of cities, 4 first place winners use Harley-Davidsons . . . 11 of the 14 cities honored use Harley-Davidsons . . . Of 10 first place winners in both state and city divisions, 8 are users of Harley-Davidsons.

• • •

America pays honor to its safest cities and states. In the background of their safety campaigns rides the motorcycle officer, ever championing the cause of safety and demonstrating most convincingly that motorcycles are indispensable in establishing notable safety records. And it is significant that dependable Harley-Davidsons are definitely the favorite police motorcycles.

HARLEY-DAVIDSON MOTOR CO., Milwaukee, Wisconsin

HARLEY-DAVIDSON
THE POLICE MOTORCYCLE



The Hough One-Way Sweeper on a Farmall A Tractor

Snow and Leaf Sweeper for Farmall Tractors

The well-known light-weight rotary sweeper of The Frank Hough Co., Libertyville, Ill., has now been adapted for use with McCormick-Deering Farmall A tractors. These rotary brooms are particularly adapted for dirt and leaf sweeping, removing fines from black top subgrade, for snow removal on sidewalks and crosswalks, and for skating-pond clean-up, as well as on general clean-up work on public works projects and airport work.

The Hough sweeper has flexible control for all working actions, with easy brush lift and adjustable broom pressure. The broom is 30 inches in diameter and 72 inches long and sweeps a 60-inch path. It operates at approximately one-tenth of the engine speed. A dust-hood covers the broom, to confine the float dust, and thus protects both the equipment and the operator.

New Publication in Soil-Cement Field

The Portland Cement Association, 33 Grand Avenue, Chicago, Ill., has announced the publication of the first issue of "Soil-Cement News" to serve better the thousands of engineers, contractors and highway and municipal officials who wish to know what goes on in the field of soil-cement use. It is planned to publish three or four issues during the year.

The first issue contains several articles on soil-cement work in different sections of the country and under different conditions. It is attractively illustrated.

New Filtration Unit at Atlanta

The Atlanta Water Works recently awarded a filtration extension contract totaling approximately $350,000. The new unit will have a capacity of 33,000,000 gallons per day. The present filtration capacity is about 39,000,000 gallons every 24 hours but will be increased to 72,000,000 gallons when the six contracts in connection with the contemplated seven unit improvements are completed.

The General Manager, W. Zode Smith, announced that the Smith-Pew Construction Co., Atlanta, Ga., was awarded the major building structure contract calling for an expenditure of $159,800. Other contracts were as follows: Roberts Filter Manufacturing Co., Darby, Pa., $128,560.40; Builders Iron Foundry, Providence, R. I., $16,404,000; and others totaling approximately $350,000.

Recommendations filed with Council indicated that the above awards were made to lowest bidders. The contract is to be completed in about a year.

Wiedeman and Singleton, engineers, Atlanta, executed the plans for this extension.

Many water works men ordered their *first*
RUSTA RESTOR
on trial
YOU
can do the same.

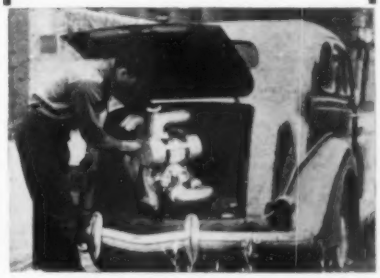
If rust on steel tanks or filter beds is one of your problems, let us STOP it for you, permanently, as we've done for many others.

Write for circular describing

RUSTA RESTOR
TRADE MARK REGISTERED
PATENTED PATS. PEND.

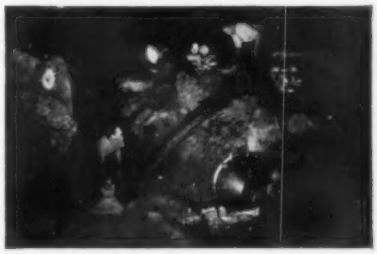
RUSTA RESTOR CORPORATION
1450 W. State St., Fremont, O.

THE BIG THREE ADVANTAGES *of* Homelite Portable Pumps



EASY TO GET AROUND

A Homelite 3" Portable Pump is the handiest pump you can have. Complete unit, including built-in Homelite gasoline engine is small, compact—weighs only 91 pounds. You can put it to work anywhere *in a hurry*. You get your pumping done quicker. You speed work—eliminate delays—save money.



SURE TO DO THE JOB

A Homelite pumps 15,000 gallons per hour. Has a 28-foot suction lift. Is fast self-priming—keeps seepage constantly at strainer level. Moreover it is non-clogging—handles up to 35% solids without trouble.

ALWAYS DEPENDABLE

A Homelite is built for continuous, heavy-duty pumping. It is completely weather-proof and fool-proof. Needs no manual attention. All parts are scientifically designed and made of the finest tested materials to insure longest wear.

See how thousands save money with Homelite Portable Pumps. Our new bulletin gives many startling facts about Homelite performance. Write for a copy.

HOMELITE CORPORATION
206 Riverdale Ave., Port Chester, N. Y.

POWER

EXTRA POWER AT LESS COST

Have you a hauling job that calls for extra power? For a little more than $600 plus taxes, delivered at the factory, you can have a Ford 95-horsepower Truck, and be sure you get the job done at low cost. To get as much horsepower in any other truck, you would have to pay almost $300 more.

You can depend on this Ford 95-horsepower Truck. Back of it is the company which has built more trucks than any one else. Truck specialists designed the Ford "95" to do the tough jobs—and it is doing them in practically every line of hauling.

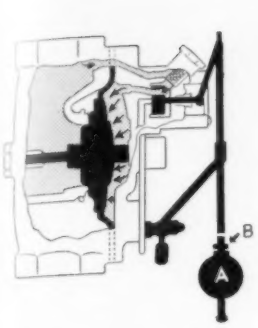
Do you want extra power and high speed — with a lot of what it takes under all kinds of loads and all kinds of roads? Then it will pay you to talk with the Ford dealer today about the Ford V-8 95-horsepower Truck.

Ford

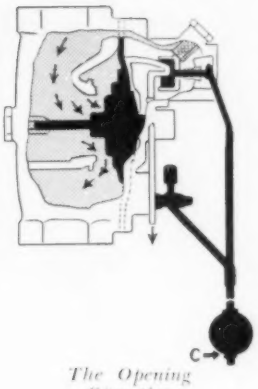
FORD 95-HP TRUCKS

FORD MOTOR COMPANY, BUILDERS OF FORD V-8 AND MERCURY CARS, FORD TRUCKS, COMMERCIAL CARS, STATION WAGONS AND TRANSIT BUSES

Why not remember to mention THE AMERICAN CITY?



The Clayton Float Control Valve, Showing the Closing Operation



The Opening Operation

Pilot-Operated Valve for Tank-Level Control

A new method of float control for the elevation of water in tanks or basins has been developed by the Clayton Mfg. Co., Alhambra, Calif. The Clayton valve is operated through a pilot which uses the pressure of the water in the main to open and close the flow valve by pressure on a diaphragm.

Rising liquid in the tank or basin causes the copper float to come in contact with the top or closing stop on the rod within the tank. This rotates a small pilot valve admitting the full line pressure to the hydraulic chamber back of the diaphragm, causing the diaphragm and disc assembly to move forward because it is greater in area than the valve seat. The valve remains closed until the liquid level drops so that the float comes in contact with the bottom or open stop. The pilot valve is then rotated slightly, cutting off the line pressure and at the same time opening a free passage from the hydraulic chamber to the atmosphere. This releases the pressure in the hydraulic chamber so that the line pressure is admitted to the opposite side against the valve disc, which, with the diaphragm assembly, is then moved away from the seat until the hydraulic chamber is fully expelled and the valve is wide open.

Special advantages claimed for the Clayton float valve are its positive action, and the feather-touch control in that the small ball float only has to travel about one inch to rotate the pilot and reverse the line pressure, so that it is either an opening or a closing force, and it does this with no water hammer or line shock.

Complete information on Clayton float valves may be secured direct from the manufacturer by mentioning this article.

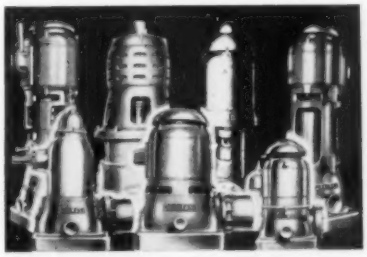
Protecting the Small Water Supply

A simple, inexpensive means of protecting small water supplies such as those of summer camps, resorts, swimming pools, water-bottling plants, dairies and schools, as well as for feeding chemical solutions in the water-works plant, is described in a new 8-page illustrated booklet just published by Wallace & Tiernan Co., Inc., Newark, N. J.

The ease with which water supplies may become contaminated is discussed in this booklet, and in a section entitled "How It Works" the adaptability of W&T Hypochlorinators to small water supplies is described. Sketches show how W&T Hypochlorinators may be installed either in pump discharge or in pump suction. The booklet also includes illustrations showing the Hypochlorinators adapted to three types of operation—electrical, and water, both manual and automatic. For the booklet, Publication No. 357, write Wallace & Tiernan Co., Inc., Newark, N. J.

Atherton & Currier Open Toronto Branch Office

Atherton & Currier, Inc., well known advertising agency of New York City and London, has announced the opening of a fully staffed branch office in Toronto, Ontario, on April 1, 1940. The new office is located in the Concourse Bldg., 100 Adelaide Street West, Toronto. O. F. Burkart, for many years associated with Canadian advertising, will be Vice-President in charge of this new office.



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Water economy unheard of a few years ago is yours by the installation of a Peerless. More than one hundred outstanding features have been developed by Peerless during the past fifteen years. Request catalog.

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Tanks of every "color, race and creed" — tanks of all kinds, metals, shapes and capacities for all purposes. • Elevated and surface tanks for the storage of water, oil, fuel, dye, chemicals, creosote, etc. For tanks, remember COLE.

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Towers, standpipes, vats, heavy pressure vessels, flumes, bins, kettles, smokestacks, boilers, castings, and all kinds of fabricated plated work—welded and riveted. Made to your specifications, or from our designs submitted by our own Engineering Department.

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Established in 1854
NEWNAN · · · GEORGIA

Following %Proportioneers% usual policy of reducing chemical feeding to its simplest, most efficient terms, we present to you—

THE PACKAGED AMM-O-FEEDER

This unit consists of complete ammoniation equipment for water plants using up to 30 lbs. of NH_3 per day at approximately one half the cost of gas equipment. The cost of chemical is, in most cases, also cut in half.

Fume-Proof, Simple, Accurate, Dependable; Amm-O-Feeder is proving to be one of our outstanding contributions to water treatment. *It takes the complications out of ammoniation* and places it within the reach of any plant no matter how small—at the same time it is the most economical and efficient method for almost any plant ranging in size from Norway, Maine, with a population of 2,500, to Washington, D. C., with a population of ½ million.

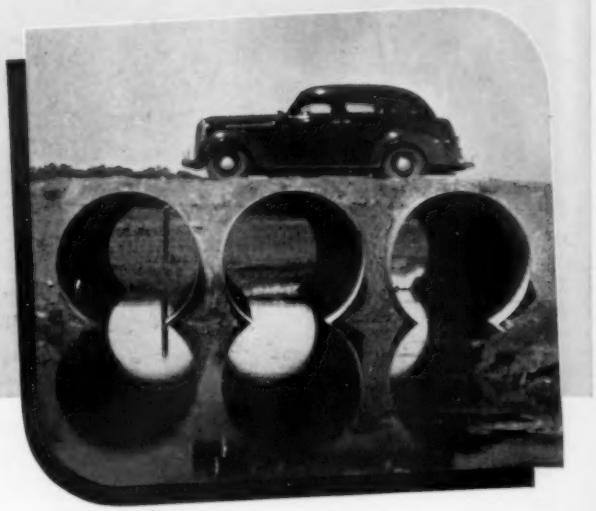
The new packaged
AMM-O-FEEDER

For Swimming Pools, the package unit is especially recommended as safe in the hands of non-technical operators.

Write giving your rate of flow and ammonia dosage. %Proportioneers% will be glad to give you full information and prices or have a sales engineer call—with no obligation on your part.

%PROPORTIONEERS, INC.%
99 CODDING STREET, PROVIDENCE, R. I.

LET THE HIGHWAYS THEMSELVES MAKE YOUR PIPE DECISION



There is no test more conclusive than performance, and it is here that GOHI Corrugated Pipe demonstrates its amazing endurance, its ability to deliver trouble-free service under the most severe conditions at the lowest per year cost. Economical to buy, to install, to maintain, GOHI Corrugated Pipe is the logical answer to highway and other drainage problems. Complete information and copy of 72-page book on modern culvert practice on request. Address fabricator nearest you.

GOHI Pipe meets Copper-Bearing Pure Iron requirements in all specifications published by nationally recognized specifying authorities.

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Central Culvert Co.	Ottumwa, Iowa
Capital City Culvert Co.	Madison, Wis.
Bancroft & Martin Rolling Mills Co.	S. Portland, Me.
Denver Steel & Iron Works Co.	Denver, Colo.
The Lane Pipe Corporation	Bath, N. Y.
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THE "BEACHCOMBER" AT WORK ON HERMOSA BEACH, CALIF.

This tractor-drawn 10-foot rake, designed by Street Superintendent John MacCready, helps to make the beach an outstanding municipal asset by keeping it free from litter.

(See page 45)